System No. <u>PT01</u> Document No. <u>PE-04-0002</u> Rev. <u>0</u>

The following table summarizes the Quality Level (QL) for each packaging component utilizing the guidelines presented in Table 5 for "Type B Fissile" from NUREG/CR-6407, Classification of Transportation Packaging and Dry Spent Fuel Storage System Components According to Importance to Safety. Quality Category Assessments (QCAs) follow the summary table.

NUREG/CR-6407 Definition			HalfPACT Safety Analysis Report Drawing No. 707-SAR, Rev. 6						
Function Component Type			Item Description	Drawing Reference	QL	Ref. Doc.	QCA		
			Cylindrical Shells	Sheet 3, Detail S		N/A	01		
			Upper Torispherical Head	Sheet 2; Sheet 3, Detail P	A	N/A	03		
			Lower Torispherical Head	Sheet 2; Sheet 3, Detail S	A	N/A	03		
		ICV	Lifting Pocket Pipes	Sheet 8, Section X-X	Α	N/A	23		
	Shells and Heads		Lifting Pocket Bottom Plates	Sheet 8, Section X-X	A	N/A	23		
	Silens and rieads		Lifting Pocket Round Bars	Sheet 8, Section X-X	Α	N/A	23		
			Lifting Pocket Doubler Plates	Sheet 8, Section X-X	A	N/A	23		
		OCV	Cylindrical And Conical Shells	Sheet 4, Details B & AC	A	N/A	01		
			Upper Torispherical Head	Sheet 2, Detail "HalfPACT Packaging"	Α	N/A	03		
			Lower Torispherical Head	Sheet 2; Detail "HalfPACT Packaging"	Α	N/A	03		
		ICV	Upper Seal Flange	Sheet 3, Detail P; Sheet 6	A	N/A	02		
Containment			Lower Seal Flange	Sheet 3, Detail P; Sheet 6	Α	N/A	02		
			Locking Ring	Sheet 3, Detail P; Sheet 6	Α	N/A	02		
			Lock Bolt Internal Thread Inserts (optional)	Sheet 7, Section T-T	A	N/A	20		
			Lock Bolt Weldments	Sheet 7, Section T-T	A	N/A	20		
			Locking Ring Pins Sheet 10, View BA-BA		A	N/A	20		
	Vessel Closure		Locking Ring Stop Plates (optional)	Sheet 10, Section AZ-AZ	С	N/A	27		
			Nickel Plating (optional)	Sheet 1, Flag Note 53	С	N/A	30		
			Upper Seal Flange	Sheet 4, Detail AC; Sheet 6	A	N/A	02		
			Lower Seal Flange	Sheet 4, Detail AC; Sheet 6	A	N/A	02		
		OCV	Locking Ring	Sheet 4, Detail AC; Sheet 6	A	N/A	02		
			Locking Z-Flange	Sheet 4, Detail B	A	N/A	07		
			Lock Bolt Round Bars	Sheet 4, Detail Y	A	N/A	20		

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NUREG/CR-6407 Definition			HalfPACT Safety Analysis Report Drawing No. 707-SAR, Rev. 6				
Function	Function Component Type		Item Description	Drawing Reference	QL	Ref. Doc.	QCA
			Lock Bolt Internal Thread Inserts	Sheet 4, Detail Y	A	N/A	20
			Lock Bolt Weldments	Sheet 7, Section T-T	Α	N/A	20
	Vessel Closure	OCV	Locking Ring Pins	Sheet 10, View BC-BC	Α	N/A	20
	v essei Ciosuie	OCV	Locking Ring Pan Head Screws	Sheet 4, Detail AC	A	N/A	20
			Locking Ring Stop Plates	Sheet 10, Section AZ-AZ	С	N/A	28
			Nickel Plating (optional)	Sheet 1, Flag Note 53	С	N/A	30
		ICV	Vent Port Insert	Sheet 5, Section V-V	Α	N/A	21
Containment		IC V	Outer Vent Port Plug	Sheet 5, Section V-V	Α	N/A	21
	Vent Port		Vent Port Coupling (Inboard)	Sheet 5, Section H-H	Α	N/A	21
		OCV	Vent Port Fitting	Sheet 5, Section H-H	A	N/A	21
			Vent Port Plug	Sheet 5, Section H-H	Α	N/A	21
	Seals	ICV	Main O-ring Seal	Sheet 5, Section W-W	Α	N/A	10
			Vent Port Plug O-ring Seal	Sheet 12, "ICV Outer Vent Port Plug"	Α	N/A	10
		OCV	Main O-ring Seal	Sheet 5, Section G-G	A	N/A	10
			Vent Port Plug O-ring Seal	Sheet 11, "OCV Vent Port Plug"	Α	N/A	10
			Ceramic Tape	Sheet 4, Detail Y	В	N/A	15
			Adhesive	Sheet 4, Detail Y	В	N/A	15
			Inner Thermal Shield	Sheet 4, Detail B	В	N/A	15
			Pop Rivets	Sheet 4, Detail B	В	N/A	15
	Temperature		Fiberglass Insulation	Sheet 4, Detail B	В	N/A	15
Heat Transfer	Control	OCA	Lid Angle	Sheet 4, Detail Y	В	N/A	15
1100101	Components		Body Angle	Sheet 4, Detail Y	В	N/A	15
			Seal Test Port Foam or Ceramic Plug	Sheet 5, Section G-G	В	N/A	15
			Vent Port Foam or Ceramic Plug	Sheet 5, Section H-H	В	N/A	15
			Outer Thermal Shield	Sheet 4, Detail B	A	N/A	16
			Pipe Plugs	Sheet 2, View A-A, Sheet 8, Section L-L	В	N/A	17

Document No. PE-04-0002

NUREG/CR-6407 Definition			HalfPACT Safety Anal	ysis Report Drawing No. 707-SAR, Rev	/. <b>6</b>		
Function Component Type			Item Description	Drawing Reference	QL	Ref. Doc.	QCA
			Spacer Brackets	Sheet 3, Details P & S	C	N/A	08
			Spacer Facing Sheets	Sheet 3	В	N/A	09
			Spacer Honeycombs	Sheet 3	В	N/A	09
		ICV	Furane Adhesive	Sheet 3	С	N/A	30
	Dunnage		Pan/Round Head Screws	Sheet 3, Details P & S	C	N/A	27
			Flat Washers	Sheet 3, Details P & S	С	N/A	27
			U-Type Fasteners	Sheet 3, Details P & S	С	N/A	27
		OCV	Silicone Wear Pad	Sheet 2, Detail "HalfPACT Packaging"	C	N/A	28
		OCV	Annulus Foam Ring (optional)	Sheet 4, Detail B	С	N/A	28
		OCA	Cylindrical Shells	Sheet 2, Detail C; Sheet 3, Detail F, etc.	A	N/A	04
Structural			Upper Torispherical Head	Sheet 2, Detail "HalfPACT Packaging"	A	N/A	05
Integrity			Lower Flat Head	Sheet 2, Detail "HalfPACT Packaging"	A	N/A	05
	Impact Limiter		Upper Z-Flange	Sheet 4, Detail B	В	N/A	06
			Lower Z-Flange	Sheet 4, Detail B	В	N/A	06
			Fire Vent Weld Flanges	Sheet 2, View A-A, Sheet 8, Section L-L	В	N/A	17
			Foam Fill Port Doubler Plates	Sheet 8, Sections K-K & L-L	В	N/A	17
			Foam Fill Port Cover Plates	Sheet 8, Sections K-K & L-L	В	N/A	17
			Ceramic Fiber Paper	Sheet 4, Details B & Z, Sheet 8, Section M-M	A	N/A	18
			Polyurethane Foam	Sheet 2, Detail "HalfPACT Packaging"	A	N/A	19
			RTV Silicone Adhesive	Sheet 1, Flag Note 34	C	N/A	30
	Packaging	OCA	Guide Plates (optional)	Sheet 4, Detail AC	С	N/A	28
	Hardware	OCA	Guide Plate Pan Head Screws (optional)	Sheet 4, Detail AC	С	N/A	28
			Tamper Indicating Seals	Sheet 4, Detail Y; Sheet 5, View AH-AH	С	N/A	29
Operations	Security Lockwire	OCA	Tamper Indicating Tie-Wires	Sheet 4, Detail Y; Sheet 5, View AH-AH	C	N/A	29
Support			Hex Head Cap Screw	Sheet 5, Section H-H	С	N/A	29
	Forklift Channels	OCA	Fork Lift Pockets	Sheet 4, Detail Z	В	N/A	24

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NUREG/CR-6407 Definition			HalfPACT Safety Anal	ysis Report Drawing No. 707-SAR, R	ev. 6		'
Function Component Type			Item Description	Drawing Reference	QL	Ref. Doc.	QCA
			Cover Plates	Sheet 2, Detail E	С	N/A	29
	Forklift Channels	OCA	Round Bars	Sheet 4, Section AA-AA	C	N/A	29
	FOIRIII Chamleis	OCA	Internal Thread Inserts (optional)	Sheet 4, Section AA-AA	C	N/A	29
			Pan Head Screws and Flat Washers	Sheet 4, Section AA-AA	C	N/A	29
			Lifting Straps	Sheet 8, Section M-M	В	N/A	24
			Doubler Plates	Sheet 8, Section AX-AX	В	N/A	24
	Lid Lifting	OCA	Round Bars	Sheet 8, View AV-AV	В	N/A	24
	Hardware	OCA	Round Tubing	Sheet 8, Section M-M	С	N/A	29
			Hex Head Cap Screws and Lock Washers	Sheet 8, View AV-AV	С	N/A	29
			Covers, Lanyards, and Spring Clips	Sheet 8, Section M-M	С	N/A	29
	Tie-down Components	OCA	Tie-down Lugs	Sheet 2, View A-A; Sheet 9, View J-J	В	N/A	25
			Side Doubler Plates	Sheet 9, View J-J	В	N/A	25
Operations			Gussets	Sheet 9, View J-J & Section D-D	В	N/A	25
Support			Bottom Doubler Plates	Sheet 9, Section D-D	В	N/A	25
			Bottom Tripler Plates	Sheet 9, Section BD-BD	В	N/A	25
			Inner Vent Port Plug	Sheet 5, Section V-V	С	N/A	13
			Vent Port Cover	Sheet 5, Section V-V	С	N/A	13
			Wiper O-ring Seal Holder	Sheet 5, Section V-V	С	N/A	13
			Pan/Round Head Drive Screws	Sheet 5, Section V-V	С	N/A	13
	Vent and Seal Test	ICV	Debris Shield	Sheet 5, Section W-W	С	N/A	13
	Port Plugs and		Debris Shield Adhesive Tape	Sheet 5, Section W-W	С	N/A	13
	Covers		Vent Port Mesh (optional)	Sheet 5, Section V-V	С	N/A	13
			Seal Test Port Insert	Sheet 5, Section W-W	В	N/A	22
			Seal Test Port Plug	Sheet 5, Section W-W	В	N/A	22
		OCM	Seal Test Port Access Plug	Sheet 5, Section G-G	В	N/A	12
		OCV	Seal Test Port Coupling	Sheet 5, Section G-G	В	N/A	12

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NUREG/CR-6407 Definition			HalfPACT Safety Analysis Report Drawing No. 707-SAR, Rev. 6					
Function Component Type			Item Description	Drawing Reference	QL	Ref. Doc.	QCA	
			Vent Port Access Plug	Sheet 5, Section H-H	В	N/A	12	
			Vent Port Coupling (Outboard)	Sheet 5, Section H-H	В	N/A	12	
			Vent Port Plug Handling O-ring Seal	Sheet 11, Detail "OCV Vent Port Plug"	С	N/A	14	
		OCV	Vent Port Cover	Sheet 11, Detail "OCV Vent Port Cover"	С	N/A	14	
			Vent Port Cover Handling O-ring Seal	Sheet 11, Detail "OCV Vent Port Cover"	С	N/A	14	
			Seal Test Port Insert	Sheet 5, Section G-G	В	N/A	22	
	Vent and Seal Test		Seal Test Port Plug	Sheet 5, Section G-G	В	N/A	22	
	Port Plugs and Covers		Seal Test Port Doubler Plate	Sheet 5, Section G-G	В	N/A	12	
			Seal Test Port Fiberglass Tube	Sheet 5, Section G-G	С	N/A	14	
		OCA	Seal Test Port Tubing	Sheet 5, Section G-G	С	N/A	14	
Operations			Vent Port Doubler Plate	Sheet 5, Section H-H	В	N/A	12	
Support			Vent Port Fiberglass Tube	Sheet 5, Section H-H	С	N/A	14	
			Epoxy Adhesive	Sheet 1, Flag Note 32	С	N/A	30	
			RTV Silicone Adhesive	Sheet 1, Flag Note 34	С	N/A	30	
		ICV	Test O-ring Seal	Sheet 5, Section W-W	С	N/A	11	
			Inner Vent Port Plug O-ring Seal	Sheet 12, Detail "ICV Inner Vent Port Plug"	С	N/A	13	
			Vent Port Cover O-ring Seal	Sheet 12, Detail "ICV Vent Port Cover"	С	N/A	13	
	Outer Seals		Wiper O-ring Seal	Sheet 5, Section V-V	С	N/A	13	
	Outer Sears		Seal Test Port Plug O-ring Seal	Sheet 11, Detail "OCV & ICV Seal Test Port Plug"	В	N/A	22	
			Test O-ring Seal	Sheet 5, Section G-G	С	N/A	11	
		OCV	Vent Port Cover O-ring Seal	Sheet 11, Detail "OCV Vent Port Cover"	С	N/A	14	
			Seal Test Port Plug O-ring Seal	Sheet 11, Detail "OCV & ICV Seal Test Port Plug"	В	N/A	22	
			Paint (optional)	Sheet 1, Flag Note 25	С	N/A	28	
Miscellaneous	Miscellaneous	OCA	Nameplates	Sheet 2, View "A-A"	С	N/A	28	
iviiscenaneous	Miscenaneous	UCA	Labels	Sheet 2, Detail "HalfPACT Packaging"	С	N/A	28	
			Shipping Label Holder (optional)	Sheet 2, Detail "HalfPACT Packaging"	С	N/A	28	

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NUREG/CR-6407 Definition			HalfPACT Safety Analysis Report Drawing No. 707-SAR, Rev. 6					
Function	Component Type		Item Description	Drawing Reference	QL	Ref. Doc.	QCA	
			Weld Filler Material	Most drawing sheets	A	N/A	26	
	Miscellaneous A	All	Vacuum Grease	Sheet 1, Flag Notes 15 & 38	С	N/A	30	
Missallansous			Optional Stainless Steel Compatible Lube	Sheet 3, Detail P; Sheet 4, Detail AC	С	N/A	30	
Miscellaneous			Nickel Bearing Lubricant	Sheet 1, Flag Note 16	С	N/A	30	
			Thread Locking Compound	Sheet 1, Flag Note 17	С	N/A	30	
			Labeling	Sheet 1, Flag Notes 29, 30, & 40	С	N/A	30	

ΕA	.08PT3006-1-0	QUALITY CAT	EGORY ASSESSMEN	NT .	Page	7 of 46
Sy	stem No. PT01	_	Document No	PE-04-0002	Rev	0
Su	bject <u>HalfPACT Packag</u>	e	QCA No	01	Rev	0
Drawing No. PacTec Drawing No. 707-SAR (HalfPACT Safety Analysis Report Drawing)				Rev.	6	
ITE	M DESCRIPTION:					
		ICV AND OCV CYLI	NDRICAL AND CONICAL SHE	LLS		
1.	F/N 19, Zone A/B-6/7/8;	Sheet 1, G/N 24, Zone	, G/N 7, Zone C-6/7/8; Shee A-6/7/8; Sheet 1, G/N 26, Zo I, G/N 50, Zone C-1/2/3; Shee	one D-4/5/6; Shee	et 1, G/N 2	
2.	F/N 19, Zone A/B-6/7/8;	Sheet 1, G/N 24, Zone, Zone A-4/5/6; Sheet	1, G/N 7, Zone C-6/7/8; Sheet A-6/7/8; Sheet 1, G/N 26, Zo 1, G/N 50, Zone C-1/2/3; She-2	one D-4/5/6; Shee	et 1, G/N 2	7, Zone
Qu	JALITY CATEGORY:		☐ Category B	☐ Categor	уС	
Ва	sis:					
are		inment under normal	of the inner and outer contains conditions of transport and he the packaging.			
Cri	itical Characteristics:		als and physicals)	Other (state b	pelow):	
is (	0.178-inch, and the minimu	m thickness for all 1/4	he minimum thickness for all 34-inch nominal thickness mat 1.17 of ASTM A480-95a or A2	erial is 0.240-inc	h. The ma	
	bsection NE, Article NE-42		ice with the tolerance requir ler and Pressure Vessel Code			
we (19 ins) Art ins) the III,	lding personnel shall be que 195 Edition, 1997 Addenda pect on the final pass in acciticle 6, of the ASME Boiler pected in accordance with ASME Boiler and Pressure Division 1, Subsection N	nalified in accordance, or later). Visually excordance with Section I and Pressure Vessel C Section III, Division 1, e Vessel Code (1995 E.B, Article NB-4400, o	enetration (V-groove if longing with Section IX of the ASM xamine welds in accordance III, Division 1, Subsection NE Code (1995 Edition, 1997 Add., Subsection NB, Article NB-dition, 1997 Addenda, or late of the ASME Boiler and Prefereinforcement of 3/32-inch.	E Boiler and Pre with AWS D1.13, Article NB-500 denda, or later), a -5000, and Section. Welds shall c	ssure Vess , liquid po 00, and Seo nd radiogr on V, Artic onform to	el Code enetrant ction V, aph test ele 2, of Section
Co	MMERCIAL GRADE DEDICA	 TION: (SUMMARIZE CF	HARACTERISTICS)			
N/A		,	,			

Preparer

Date

11.19.04

11.19.04

Date

Cognizant Manager

Date

Date

Date

OA Representative

Date

	A08PT3006-1-0 QUALITY CA	ATEGORY ASSESSMENT	Page 8 of 46
Sy	vstem No. PT01	Document No. PE-04-0002	Rev0
Su	ubject HalfPACT Package	QCA No02	Rev0
Dra	rawing No. PacTec Drawing No. 707-SAR (	HalfPACT Safety Analysis Report Drawing)	Rev6
ITE	EM DESCRIPTION:		
	ICV AND OCV SI	EAL FLANGES AND LOCKING RINGS	
1.	11, Zone B/C-6/7/8; Sheet 3, Detail P, Zone I	1, G/N 7, Zone C-6/7/8; Sheet 1, G/N 8, Zone CB-4/5; Sheet 6, Detail "ICV UPPER, SEAL FLAGE", Zone A/B-5; Sheet 6, Detail "ICV LOCK	NGE", Zone A/B-7;
2.	11, Zone B/C-6/7/8; Sheet 4, Detail AC, Zone	t 1, G/N 7, Zone C-6/7/8; Sheet 1, G/N 8, Zone Ce C-2; Sheet 6, Detail "OCV UPPER SEAL FLANGE", Zone C/D-5; Sheet 6, Detail "OCV LOC	NGE", Zone C/D-7;
Qι	JALITY CATEGORY:   Category A	☐ Category B ☐ Categ	ory C
Ва	asis:		
are		part of the inner and outer containment vessel (ontainment under normal conditions of transpose radioactive material from the packaging.	
Cri	itical Characteristics:   CMTR (cher	micals and physicals)	e below):
	ainless steel material per ASTM A240, Type rade F304 (forged billet), or ASTM A351, Grac	304 (rolled and full penetration welded plated e CF8A (centrifugal casting).	e), or ASTM A182,
we Pre D1 NE	eld procedures and welding personnel shall be essure Vessel Code (1995 Edition, 1997 Adde 1.1, liquid penetrant inspect on the final pass in 3-5000, and Section V, Article 6, of the ASME er), and radiograph test inspect in accordance	anges and/or locking rings, all welding shall be equalified in accordance with Section IX of the enda, or later). Visually examine welds in accordance with Section III, Division 1, Subsection and Pressure Vessel Code (1995 Edition with Section III, Division 1, Subsection NB, Alessure Vessel Code (1995 Edition, 1997 Addender	e ASME Boiler and ordance with AWS section NB, Article n, 1997 Addenda, or rticle NB-5000, and
		diograph or ultrasonic test inspected in accordant Section V. Article 2 or Article 5, respecti	
Sec For Div	vision 1, Subsection NB, Article NB-2500, a piler and Pressure Vessel Code (1995 Edition, 1		very, of the Asivie
For Div Bo		997 Addenda, or later).	very, of the ASME

Preparer

Date

11.19.04

11.19.04

Date

Cognizant Manager

Date

Date

Date

Date

Date

Date

Date

OA Representative

Date

	.08PT3006-1-0	QUALITY CATE	GORY ASSESSMEN	<u> T                                    </u>	Page 9 of 46
Sy	stem No. PT01	<u> </u>	Document No	PE-04-0002	Rev. <u>0</u>
Su	bject <u>HalfPACT Packag</u>	e	QCA No	03	Rev0
Dra	awing No. <u>PacTec Draw</u>	ving No. 707-SAR (HalfP.	ACT Safety Analysis Repo	rt Drawing)	Rev6
İTE	м Description:				
		ICV AND OCV ASM	E TORISPHERICAL HEADS	<b>;</b>	
1.	8, Zone C-6/7/8; Sheet 1	, F/N 19, Zone A/B-6/7/8	Zone C/D-6/7/8; Sheet 1, C B; Sheet 1, G/N 47, Zone A FLAT HEADS", Zone A/B-	X-4/5/6; Sheet 1, 0	
2.	8, Zone C-6/7/8; Sheet 1	, F/N 19, Zone A/B-6/7/8	Zone C/D-6/7/8; Sheet 1, G; Sheet 1, G/N 47, Zone A/B-FLAT HEADS", Zone A/B-	x-4/5/6; Sheet 1, 0	
Qυ	ALITY CATEGORY:		☐ Category B	☐ Category	C
Ва	sis:				
req		ment under normal condi	e inner and outer containment itions of transport and hyp e packaging.		
Cri	tical Characteristics:		s and physicals)	Other (state be	elow):
than	n the maximum thickness a	allowed for 1/4-inch nominallow for thinning during	e thickness of as-rolled mat nal thickness material per T the forming process. The i	Table A1.17 of AS	TM A480-95a or
	oricate heads in accordance denda, or later).	with Section VIII of the	ASME Boiler and Pressure	e Vessel Code (19	95 Edition, 1997
per Edi on 6, c in a Boi	sonnel shall be qualified in ition, 1997 Addenda, or lat the final pass in accordance of the ASME Boiler and Praccordance with Section III	in accordance with Section of the control of the co	ds shall be full penetration, on IX of the ASME Boile relds in accordance with A on 1, Subsection NB, Article Edition, 1997 Addenda, or NB, Article NB-5000, and 997 Addenda, or later).	r and Pressure Ve WS D1.1, liquid je e NB-5000, and S r later), and radiog Section V, Article	essel Code (1995) penetrant inspect lection V, Article graph test inspect 2, of the ASME
<u></u>	MMERCIAL GRADE DEDICA	TION: (SLIMMARIZE CHAE	DACTEDISTICS)		
$\mathbf{C}$	MINIERCON RE OF ORDE DEDICA	THOM. (OUMINIARIZE OFFAI	RACTERISTICS)		

Preparer

Date

11.19.04

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Date

Cognizant Manager

Date

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Date

Date

Date

Date

Date

OA Representative

Date

EA08PT3006-1-0	QUALITY CATE	GORY ASSESSMEN	Т	Page 10 of 46
System No. PT01	_	Document No	PE-04-0002	Rev. <u>0</u>
Subject <u>HalfPACT Package</u>	2	QCA No	04	Rev. <u>0</u>
Drawing No. PacTec Draw	ing No. 707-SAR (Halt	fPACT Safety Analysis Repor	t Drawing)	Rev. <u>6</u>
ITEM DESCRIPTION:				
	OCA CY	LINDRICAL SHELLS		
Sheet 1, G/N 6, Zone C/D-6/Zone A/B-6/7/8; Sheet 1, G/N Sheet 1, G/N 47, Zone A-4/5/C/D-5; Sheet 2, Detail C, Zon B, Zone D-3/4; Sheet 4, Detail	N 24, Zone A-6/7/8; Sh 6; Sheet 1, G/N 50, Zo e B-1/2; Sheet 3, Detail	neet 1, G/N 26, Zone D-4/5/6; one C-1/2/3; Sheet 2, Detail "	; Sheet 1, G/N 27 HalfPACT PACK	7, Zone D-4/5/6; XAGING", Zone
QUALITY CATEGORY:		☐ Category B	☐ Category	С
Basis:				
The outer cylindrical shells limiter", and are required to st hypothetical accident conditio underlying polyurethane foam material from the packaging.	ructurally and thermall ns. Failure of the shell	y protect containment under n s could reduce the structural a	normal conditions and/or thermal effe	of transport and ectiveness of the
Critical Characteristics:		als and physicals)	Other (state be	:low):
Stainless steel material per AST 0.240-inch, and the minimum the for all material is in accordance	nickness for all 3/8-inch	nominal thickness material is 0.	365-inch. The man	
Fabricate cylindrical shells in Article NE-4220, of the ASMI				
All construction welding of the welding personnel shall be que (1995 Edition, 1997 Addenda, inspect on the final pass in act Boiler and Pressure Vessel Confinal pass in accordance with the ASME Boiler and Pressure accordance with Section III, I Boiler and Pressure Vessel Convision 1, Subsection NF, Anddenda, or later), and shall he	ralified in accordance vor later). Visually example or later). Visually example of the condex of the	with Section IX of the ASME mine welds in accordance with III, Division 1, Subsection N Addenda, or later), and liquid Subsection NB, Article NB-3 dition, 1997 Addenda, or late NB, Article NB-5000, and Separated NB-5	Boiler and Pressi h AWS D1.1 and F, Article NF-500 I penetrant inspect 5000, and Section r), or radiograph ection V, Article lds shall conform	ure Vessel Code liquid penetrant 00 of the ASME t on the root and V, Article 6, of test inspected in 2, of the ASME to Section III,
COMMERCIAL GRADE DEDICA	TION: (SUMMARIZE CH.	ARACTERISTICS)		
N/A				

Preparer

Date

Date

Toll C. Sellm 11/23/04

Cognizant Engineer

Date

Od Representative

Date

EA08PT3006-1-0	QUALITY CATEGORY ASSESSME	NT	Page 1	1 of 46
System No. PT01	Document No.	PE-04-0002	Rev	0
Subject <u>HalfPACT Packag</u>	ge QCA No.	05	Rev	0
Drawing No. PacTec Draw	ving No. 707-SAR (HalfPACT Safety Analysis Rej	oort Drawing)	Rev	6
ITEM DESCRIPTION:				
	OCA ASME TORISPHERICAL AND FLAT HEA	DS		
Sheet 2, "ASME TORISPHE	RICAL AND FLAT HEADS", Zone A/B-4/5/6			
QUALITY CATEGORY:	□ Category B	☐ Category	y C	
Basis:				
			eals, result	
Stainless steel material per AS than the maximum thickness	STM A240, Type 304. The thickness of as-rolled mallowed for 1/4-inch nominal thickness material per allow for thinning during the forming process. The	aterial used for hear Table A1.17 of A	ids may be STM A48	0-95a or
Fabricate heads in accordance Addenda, or later).	e with Section VIII of the ASME Boiler and Pressu	are Vessel Code (1	995 Editio	on, 1997
personnel shall be qualified Edition, 1997 Addenda, or lat on the final pass in accordance 6, of the ASME Boiler and Pr in accordance with Section II	te ASME torispherical heads shall be full penetration in accordance with Section IX of the ASME Boiler). Visually examine welds in accordance with the with Section III, Division 1, Subsection NB, Articlessure Vessel Code (1995 Edition, 1997 Addenda, I, Division 1, Subsection NB, Article NB-5000, and Code (1995 Edition, 1997 Addenda, or later)	ler and Pressure V AWS D1.1, liquid cle NB-5000, and S or later), and radio d Section V, Articl	ressel Cod penetrant Section V graph test e 2, of the	le (1995 t inspect , Article t inspect e ASME
COMMERCIAL GRADE DEDICA	ATION: (SUMMARIZE CHARACTERISTICS)			
N/A				

N/A

Joeld C. Sellm 11/23/04
Cognizant Engineer Date

Date

QA Representative Date 11.23.04 Cognizant Manager

EA08PT3006-1-0 QUALITY CA	TEGORY ASSESSMENT	Page 12 of 46
System No. PT01	Document No. PE-04-0002	Rev. 0
Subject HalfPACT Package	QCA No06	Rev0
Drawing No. PacTec Drawing No. 707-SAR (F	HalfPACT Safety Analysis Report Drawing)	_ Rev. <u>6</u>
ITEM DESCRIPTION:		
OCA UPPE	ER AND LOWER Z-FLANGES	
Sheet 1, G/N 6, Zone C/D-6/7/8; Sheet 1, G/N 7 Zone C-4/5/6; Sheet 4, Detail B, Zone C-3/4	', Zone C-6/7/8; Sheet 1, G/N 8, Zone C-6/7/8	3; Sheet 1, F/N 28,
QUALITY CATEGORY:   Category A		ory C
Basis:		
The OCA upper and lower Z-flanges comprise a p and are required to structurally and thermally hypothetical accident conditions. However, the thermal shield. Failure of the Z-flanges could redute containment seals, resulting in a release radio failure of the locking Z-flange and outer thermal sl	protect containment under normal conditions. Z-flanges are positioned behind the locking zuce the effectiveness of the closure region thermactive material from the packaging, but only in	s of transport and Z-flange and outer nal design and thus
Critical Characteristics:   CMTR (chem	nicals and physicals)	below):
Stainless steel material per ASTM A240, Type 30 (0.075-inch), with sheet thickness tolerances in acc A480-99b.		
If Z-flanges are fabricated as welded assemblies, weld procedures and welding personnel shall be a Pressure Vessel Code (1995 Edition, 1997 Addenda D1.1 and liquid penetrant inspect in accordance we ASME Boiler and Pressure Vessel Code (1995 Edition).	qualified in accordance with Section IX of the a, or later). Visually examine butt welds in accirth Section III, Division 1, Subsection NF, Artic	ASME Boiler and ordance with AWS
COMMERCIAL GRADE DEDICATION: (SUMMARIZE	CHARACTERISTICS)	
N/A		

Jold C. Sell 11/23/04
Cognizant Engineer Date

OA Representative Date 11.23.04 Cognizant Manager

EA08PT3006-1-0 <b>QUALI</b>	TY CATEGORY ASSESSME	NT	Page 13 of 46
System No. PT01	Document No.	PE-04-0002	Rev0
Subject <u>HalfPACT Package</u>	QCA No.	07	Rev0
Drawing No. PacTec Drawing No. 70	7-SAR (HalfPACT Safety Analysis Rep	oort Drawing)	Rev6
TEM DESCRIPTION:			
	OCA LOCKING Z-FLANGE		
Sheet 1, G/N 6, Zone C/D-6/7/8; Sheet Zone C-4/5/6; Sheet 4, Detail B, Zone C-		8, Zone C-6/7/8;	Sheet 1, F/N 28,
QUALITY CATEGORY:   Cate	gory A 🔲 Category B	☐ Category	C
Basis:			
The OCA locking Z-flange comprises a positive closure and containment under not the locking Z-flange could result in softom the packaging.	ormal conditions of transport and hypor	hetical accident co	nditions. Failure
Critical Characteristics:	R (chemicals and physicals)	Other (state be	elow):
Stainless steel material per ASTM A240, with sheet thickness tolerances in accordance			
If Z-flanges are fabricated as welded ass weld procedures and welding personnel Pressure Vessel Code (1995 Edition, 1997 D1.1 and liquid penetrant inspect in accordance ASME Boiler and Pressure Vessel Code (1995 Edition)	shall be qualified in accordance with S Addenda, or later). Visually examine rdance with Section III, Division 1, Sub	Section IX of the A butt welds in accord	ASME Boiler and dance with AWS
COMMERCIAL GRADE DEDICATION: (SUN	MARIZE CHARACTERISTICS)		
NT/A			

N/A

Joeld C. Sella 11/23/04
Cognizant Engineer Date

Date

Of Representative Date 11.23.04 Cognizant Manager

EA08PT3006-1-0	QUALITY CATEGO	RY ASSESSME	NT	Page 14 of 46	6
System No. PT01		Document No.	PE-04-0002	Rev0	_
Subject <u>HalfPACT Package</u>		QCA No.	08	Rev0	_
Drawing No. PacTec Drawi	ng No. 707-SAR (HalfPAC	CT Safety Analysis Rep	oort Drawing)	Rev. <u>6</u>	_
ITEM DESCRIPTION:					_
	ICV UPPER AND LOW	ER SPACER BRACKET	S		
Sheet 3, Detail P, Zone B/C-4/5; Sheet 3, Detail S, Zone B-2					
QUALITY CATEGORY:	☐ Category A	☐ Category B		С	_
Basis:					
The brackets secure the upper and lower spacer assemblies to the ICV, and are welded to the containment boundary. Furthermore, these items are optional and have no safety significance. Failure of the brackets would not release radioactive material from the packaging, resulting in no condition adversely affecting public health and safety.					
Critical Characteristics:	☐ CMTR (chemicals a	nd physicals)	Other (state be only)	elow):	
Stainless steel material per AS gauge (0.105-inch), with sheet ASTM A480-99b.					
COMMERCIAL GRADE DEDICAT	TION: (SUMMARIZE CHARAC	CTERISTICS)			_
N/A					

Preparer Date

Tolk C. Sell 11/23/04

Cognizant Manager Date

Tolk C. Sell 11/23/04

Cognizant Engineer Date

OA Representative Date

EA08PT3006-1-0	QUALITY CATEGO	RY ASSESSMEN	Т	Page 15 of 46	
System No. PT01	-	Document No	PE-04-0002	Rev0	
Subject <u>HalfPACT Package</u>		QCA No	09	Rev0	
Drawing No. PacTec Drawing No. 707-SAR (HalfPACT Safety Analysis Report Drawing) Rev. 6					
TEM DESCRIPTION:					
	ICV UPPER AND I	LOWER SPACERS			
1. Upper and Lower Space Detail "ALUMINUM HO	er Facing Sheet: Sheet 3 NEYCOMB SPACER DET		BLY", Zone A/B	1-6/7/8; Sheet 3,	
	r Honeycomb: Sheet 3, De OMB SPACER DETAIL", 2		', Zone A/B-6/7/8	; Sheet 3, Detail	
QUALITY CATEGORY:	☐ Category A	⊠ Category B	☐ Category	С	
Basis:					
The ICV upper and lower space under normal conditions of trace components would not directly	insport and hypothetical according	cident conditions. Failu	ire of the upper a		
Critical Characteristics:		nd physicals)	Other (state be	elow):	
	r Facing Sheet: The sheet may be constructed using two				
	r Honeycomb: The alumin n and maximum bare compre				
COMMERCIAL GRADE DEDICA	ION: (SUMMARIZE CHARAC	TERISTICS)			
N/A					

Preparer

Date

Date

Date

Toll C. Selln 11/23/04

Cognizant Engineer

Date

Ognizant Manager

Date

Date

Date

EA08PT3006-1-0 QU	IALITY CATEGORY ASSESS	MEN	Τ	Page 16	of 46
System No. PT01	Document	No	PE-04-0002	Rev	0
Subject <u>HalfPACT Package</u>	QCA	No	10	Rev.	0
Drawing No. PacTec Drawing N	o. 707-SAR (HalfPACT Safety Analysi	s Repo	rt Drawing)	Rev	6
TEM DESCRIPTION:					
Lin	D/BODY INNER (CONTAINMENT) O-RIN	G SEAL	LS		
1. ICV: Sheet 1, G/N 18, Zone B	-7/8; Sheet 5, Section W-W, Zone B-7				
2. OCV: Sheet 1, G/N 18, Zone B	-7/8; Sheet 5, Section G-G, Zone D-5				
VEN	NT PORT PLUG (CONTAINMENT) O-RIN	G SEAI	LS		
1. ICV: Sheet 1, G/N 18, Zone B	-7/8; Sheet 12, Detail "ICV OUTER VI	ENT PC	ORT PLUG", Zon	e B/C-5	
2. <b>OCV:</b> Sheet 1, G/N 18, Zone B	-7/8; Sheet 11, Detail "OCV VENT PO	RT PL	UG", Zone C/D-7	7/8	
QUALITY CATEGORY:	Category A		☐ Category	C	
Basis:					
under normal conditions of transpo	seal and each vent port plug O-ring sort and hypothetical accident condition from the packaging, directly resulting it	s. Fail	lure of a contain	ment O-ri	ng seal
Critical Characteristics:	CMTR (chemicals and physicals)	$\boxtimes$	Other (state be	elow):	
If a Quality Level A vendor cannot l	pe qualified, perform commercial grade	dedica	tion.		
COMMERCIAL GRADE DEDICATION: Physical Characteristics:	(SUMMARIZE CHARACTERISTICS)				

Butyl rubber material per RR-0405-70, Rainier Rubber Company, Seattle, Washington, or equivalent meeting the requirements of ASTM D2000 M4AA710 A13 B13 F17 F48 Z trace elements. Dimensions for each O-ring seal shall be as follows:

- 1. ICV Lid/Body Inner:  $71\frac{1}{2}$ -inch ( $\pm 2\%$ ) I.D.  $\times$  Ø0.400-inch  $\pm 0.010$ -inch
- 2. OCV Lid/Body Inner: 75%-inch ( $\pm 2\%$ ) I.D.  $\times$  Ø0.400-inch  $\pm 0.010$ -inch
- 3. ICV Outer Vent Port Plug: Size per Parker AS-568-910 (3-910); 0.755-inch ( $\pm 0.009$ -inch) I.D.  $\times$  Ø0.097-inch  $\pm 0.003$ -inch
- **4. OCV Vent Port Plug:** Size per Parker AS-568-906 (3-906); 0.468-inch ( $\pm 0.005$ -inch) I.D.  $\times$  Ø0.078-inch  $\pm 0.003$ -inch

### Performance Characteristics:

- 1. O-ring seal joints shall not fail when bent to a radius of 1/2-inch.
- 2. Demonstrate an acceptable batch of seal material by passing all helium leak tests and the vacuum test specified in *Verification Methods*, below.

A tark	11-19-04	Toold C. Sellm	- 11/23/04
Preparer Cavinin	Date 11 · 23 · 0 4	Cognizant Engineer	12-7-04
Cognizant Manager	Date	QA Representative	Date

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0

Verification Methods:

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1. Demonstrate acceptable O-ring seal joints by bending each joined region around a Ø1.0 bar. Acceptable O-ring seal joints will not separate during bend testing.

**2.** Qualify each batch of seal material as follows:

PT01

- a. Utilize a test fixture that is capable of testing two, Ø0.393-inch ±0.003-inch O-ring seals; the diameter of the test fixture need not be full scale (the test fixture in Nuclear Packaging Sketch SK-835, TRUPACT-II O-ring Test Fixture Assembly, or one of similar configuration should be used; the SK-835 test fixture is configured to allow the plug to radially shift relative to the bore and provide a minimum O-ring seal compression of 15% when the plug is fully translated, i.e., metal-to-metal contact on one side).
- **b.** Assemble the test fixture at room temperature with the two, lubricated test O-ring seals.
- c. Perform a series of helium leak tests to demonstrate leaktightness under all conditions (i.e.,  $1 \times 10^{-7}$  standard cubic centimeters per second (scc/s), or less, air reference leakage).
  - i. Center the plug inside the bore; while at room temperature, perform a helium leak test.
  - ii. Center the plug inside the bore; cool the test fixture to -40 °F; perform a helium leak test.
  - iii. Warm the test fixture to -20 °F; radially shift the plug relative to the bore to provide metal-to-metal contact on one side and minimum seal compression on the diametrically opposite side; perform a helium leak test.
  - iv. Maintain full radial offset; warm the test fixture to 300 °F; hold at temperature for eight hours minimum
  - v. Verify that a rapid, hard vacuum (i.e., <1 torr, absolute) can be achieved and maintained for five (5) minutes between the two test O-ring seals.
  - vi. Maintain full radial offset; cool the test fixture to -20 °F; perform a helium leak test.

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System No. PT01	_	Document No	PE-04-0002	Rev0
Subject <u>HalfPACT Package</u>	;	QCA No	11	Rev0
Drawing No. PacTec Drawi	ing No. 707-SAR (HalfP.	ACT Safety Analysis Repo	ort Drawing)	Rev. <u>6</u>
TEM DESCRIPTION:				
	LID/BODY OUTER	R (TEST) O-RING SEALS		
1. ICV: Sheet 1, G/N 44, Zo	one A-4/5/6; Sheet 5, Sec	etion W-W, Zone B-7		
2. <b>OCV:</b> Sheet 1, G/N 44, Z	one A-4/5/6; Sheet 5, Se	ction G-G, Zone D-5		
QUALITY CATEGORY:	☐ Category A	☐ Category B	□ Category	С
Basis:				
Each lid/body outer (lower) C Failure of a test O-ring seal w adversely affecting public heal	vould not release radioac			
Critical Characteristics:	☐ CMTR (chemicals	and physicals)	Other (state be	elow):
Neoprene or ethylene propyler with documentation containing		\	Durometer). Sup	oply components
1. ICV Lid/Body Inner: 71	<sup>3</sup> / <sub>16</sub> -inch (±2%) I.D. × Ø0	.375-inch ±0.010-inch		
2. OCV Lid/Body Inner: 7-	4 <sup>1</sup> / <sub>4</sub> -inch (±2%) I.D. × Ø0	0.375-inch ±0.010-inch		
COMMERCIAL GRADE DEDICA	ΓΙΟΝ: (SUMMARIZE CHAF	RACTERISTICS)		
NT/A				

Joeld C. Sellm 11/23/04
Cognizant Engineer Date

Date

QA Representative Date 11.23.04 Cognizant Manager

EA	08PT3006-1-0 QUALITY CATEGO	ORY ASSESSMEN	NT	Page 1	9 of 46
Sys	stem No. PT01	Document No	PE-04-0002	Rev	0
Sul	bject <u>HalfPACT Package</u>	QCA No	12	Rev	0
Dra	awing No. PacTec Drawing No. 707-SAR (HalfPAG	CT Safety Analysis Repo	ort Drawing)	Rev	6
İTE	M DESCRIPTION:				
	OCA/OCV EXTERNAL SEAL TEST POR	T AND VENT PORT ACC	ESS COMPONENTS		
1.	<b>Seal Test Port Access Plug:</b> Sheet 5, Section C ACCESS PLUG", Zone B-4	G-G, Zone C/D-4; Shee	t 11, Detail "OC"	V VENT	PORT
2.	<b>Seal Test Port Doubler Plate:</b> Sheet 1, F/N 19, Zo View AF-AF, Zone B-3	ne A/B-6/7/8; Sheet 5, S	Section G-G, Zone	C/D-4; S	Sheet 5,
3.	<b>Seal Test Port Coupling:</b> Sheet 5, Section G-G, Z COUPLING", Zone A/B-6	Zone C/D-4/5; Sheet 12,	Detail "OCV SEA	AL TEST	PORT
4.	<b>Vent Port Access Plug:</b> Sheet 5, Section H-H, Zone C Zone B-4	C-2; Sheet 11, Detail "OC	CV VENT PORT A	ACCESS I	PLUG",
5.	<b>Vent Port Doubler Plate:</b> Sheet 1, F/N 19, Zone A/AJ-AJ, Zone A/B-1/2	/B-6/7/8; Sheet 5, Section	n H-H, Zone C/D-	2; Sheet :	5, View
6.	Vent Port Coupling (Outboard): Sheet 5, Section COUPLING (OUTBOARD)", Zone B-2	on H-H, Zone C-2; She	et 12, Detail "OC	V VENT	PORT
Qu	ALITY CATEGORY: Category A		☐ Category	С	
Bas	sis:				
pro cau fail	ch OCA external seal test port and vent port access contect the underlying OCV O-ring seals from hypothetic se the containment seals to fail and release radioactive ure of the OCA outer shell and/or adjoining components to blic health and safety.	cal accident conditions.  e material from the pack	Failure of these coaging, but only in	omponent conjuncti	s could on with
Cri	tical Characteristics:   CMTR (chemicals a	and physicals)	Other (state be	elow):	
1.	<b>Seal Test Port Access Plug:</b> 1½-inch NPT flush pig Certificate of Conformance containing configuration	pe plug; stainless steel n and material certificatio	naterial. Supply c n.	omponen	t with a
2.					
3.	<b>Seal Test Port Coupling:</b> Stainless steel material per Certified Material Test Report (CMTR) containing cl			y materia	l with a
4.	<b>Vent Port Access Plug:</b> 1½-inch NPT flush pipe Certificate of Conformance containing configuration			omponent	with a
5.	<b>5. Vent Port Doubler Plate:</b> 3/8-inch thick plate; stainless steel material per ASTM A240, Type 304. The minimum thickness for 3/8-inch nominal thickness material is 0.365-inch. The maximum thickness for 3/8-inch nominal material is in accordance with Table A1.17 of ASTM A480-95a or A2.17 of ASTM A480-99b. Supply material with a Certified Material Test Report (CMTR) containing chemical and physical properties.				
	Stark 11.19.04	Joeld C.	Sellu	11/23/0	4
Prep	Word 11.23.04	Cognizant Engineer	lleans 1	2-7-	Date 04
Cog	nizant Manager Date	QA Representative			Date

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System No. PT01	Document No. PE-04-0002	Rev0		
<b>6. Vent Port Coupling (Outboard):</b> Stainless steel material per ASTM A276 or A479, Type 304. Supply material with a Certified Material Test Report (CMTR) containing chemical and physical properties.				
COMMERCIAL GRADE DEDICA	TION: (SUMMARIZE CHARACTERISTICS)			
N/A				

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Sys	stem No. PT01	<u> </u>	Document No	PE-04-0002	Rev0
Sul	bject <u>HalfPACT Packa</u> g	ge	QCA No	13	Rev0
Dra	awing No. PacTec Drav	wing No. 707-SAR (HalfPAC	T Safety Analysis Repo	ort Drawing)	Rev. <u>6</u>
ITE	м Description:				
		ICV COVERS AND DEBRIS I	EXCLUSION COMPONE	NTS	
1.	Inner Vent Port Plug: Zone B-6/7/8	Sheet 5, Section V-V, Zone C	2-7; Sheet 12, Detail "Io	CV INNER VENT	Γ PORT PLUG",
2.		<b>D-ring Seal:</b> Sheet 1, G/N 18 NT PORT PLUG", Zone B-7/9		, G/N 44, Zone A	-4/5/6; Sheet 12,
3.	Vent Port Cover: Sheet 3/4/5	t 5, Section V-V, Zone C-7; S	Sheet 12, Detail "ICV V	ENT PORT COV	ER", Zone C/D-
4.		g Gasket or Seal: Sheet 1, G PORT COVER", Zone C/D-5	/N 18, Zone B-7/8; She	eet 1, G/N 44, Zor	ne A-4/5/6; Sheet
5.	Wiper O-ring Seal: She D-7	eet 1, G/N 18, Zone B-7/8; Sh	neet 1, G/N 43, Zone A-	-4/5/6; Sheet 5, Se	ection V-V, Zone
6.	Wiper O-ring Seal Hold	der: Sheet 5, Section V-V, Zo	one D-7		
7.	Pan/Round Head Drive	Screws: Sheet 5, Section V-	·V, Zone D-7		
8.	<b>Debris Shield:</b> Sheet 5,	Section W-W, Zone B-7			
9.	<b>Debris Shield Adhesive</b>	<b>Tape:</b> Sheet 5, Section W-W	7, Zone B-7		
10.	<b>Optional Vent Port Mes</b>	<b>sh:</b> Sheet 5, Section V-V, Zon	ne D-7		
Qu	ALITY CATEGORY:	☐ Category A [	Category B		С
Bas	sis:				
the		exclusion components keep to release radioactive material fety.			
Cri	tical Characteristics:	☐ CMTR (chemicals an	ıd physicals)	Other (state be	elow):
1.	Inner Vent Port Plug: documentation containing	Brass material per ASTM I g material compliance.	,	•	,
2.					
3.	Vent Port Cover: Bras containing material comp	ss material per ASTM B16, Abliance.	Alloy 360, 1/2 hard ten	nper. Supply wit	h documentation
4.	4. Vent Port Cover Gasket or O-ring Seal: 1/16-inch thick gasket, or size per Parker AS-568-916 (3-916) O-ring seal; 1.171-inch (±0.010-inch) I.D. × Ø0.116-inch ±0.004-inch; butyl rubber material per RR-0405-70, Rainier Rubber Company, or neoprene or ethylene propylene per ASTM D2000 (70, 80, or 90 Durometer). Supply component with documentation containing dimensional and material compliance.				
Prep	Work Cavinin	11.19.04 Date 11.23.04	Jold C. Cognizant Engineer	Sella-	11/23/04 Date
Cog	nizant Manager	Date	QA Representative	Marie 1	Date

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# **QUALITY CATEGORY ASSESSMENT**

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Rev. (

- 5. Wiper O-ring Seal: Ø68-inch (±2%) I.D. × Ø0.375-inch ±0.010-inch; butyl rubber material per RR-0403-50 (Rainier Rubber Company, Seattle, Washington), buna-N rubber material per MIL-R-3065, Grade 50, fluorocarbon rubber material per ASTM D2000, MHK 607, Z1 (50 or 55 Shore A hardness), or fluorosilicone rubber material per MIL-R-25988. Supply component with documentation containing dimensional and rubber compound compliance.
- **6. Wiper O-ring Seal Holder:** Stainless steel material per ASTM A240, Type 304. The thickness of the wiper O-ring seal holder is 16-gauge (0.060-inch thick), with sheet thickness tolerances in accordance with Table A1.2 of ASTM A480-95a or A2.13 of ASTM A480-99b. Supply component with documentation containing dimensional and material compliance.
- 7. **Pan/Round Head Drive Screws:** #6 #8 × 3/8-inch long, Type U, pan or round head drive screw; stainless steel material. Supply components with documentation containing dimensional and material compliance.
- **8. Debris Shield:** 1/8-inch minimum thickness × 1/2-inch wide; open cell silicone sponge rubber material. Supply component with documentation containing dimensional and material compliance.
- **9. Debris Shield Adhesive Tape:** 1/2-inch wide double-sided adhesive tape, or equivalent. Supply component with documentation containing dimensional and material configuration.
- **10. Optional Vent Port Mesh:** Type 304 stainless steel material. Supply component with documentation containing material compliance.

COMMERCIAL GRADE DEDICATION: (SUMMARIZE CHARACTERISTICS)

N/A

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Sys	stem No. PT01	Document No.	PE-04-0002	Rev	0
Sul	bject <u>HalfPACT Package</u>	QCA No.	14	Rev	0
Dra	awing No. PacTec Drawing No. 707-SAR (HalfP	ACT Safety Analysis Rep	ort Drawing)	Rev	6
ITE	M DESCRIPTION:				
	OCA/OCV COVERS AND D	EBRIS EXCLUSION COMP	ONENTS		
1.	Seal Test Port Fiberglass Tube: Sheet 5, Section	G-G, Zone C/D-4/5			
2.	Seal Test Port Tubing: Sheet 5, Section G-G, Zoo	ne C/D-4/5			
3.	Vent Port Fiberglass Tube: Sheet 5, Section H-F	I, Zone C-2/3			
4.	<b>Vent Port Plug Handling O-ring Seal:</b> Sheet 1, 11, Detail "OCV VENT PORT PLUG", Zone C-7	G/N 18, Zone B-7/8; Sho	eet 1, G/N 44, Zoo	ne A-4/5/6	; Sheet
5.	<b>Vent Port Cover:</b> Sheet 5, Section H-H, Zone C-6/7/8	3; Sheet 11, Detail "OCV	VENT PORT CO	VER", Zo	ne B/C-
6.	<b>Vent Port Cover O-ring Seal:</b> Sheet 1, G/N 18, "OCV VENT PORT COVER", Zone B/C-6/7/8	Zone B-7/8; Sheet 1, G/N	44, Zone A-4/5/6	; Sheet 11	, Detail
7.	7. <b>Vent Port Cover Handling O-ring Seal:</b> Sheet 1, G/N 18, Zone B-7/8; Sheet 1, G/N 44, Zone A-4/5/6; Sheet 11, Detail "OCV VENT PORT COVER", Zone B/C-7				
Qu	ALITY CATEGORY: Category A	☐ Category B	□ Category	/ C	
Bas	sis:				
of t	e OCA/OCV covers and debris exclusion component these components would not release radioactive mat ecting public health and safety.				
Cri	tical Characteristics:   CMTR (chemicals	and physicals)	Other (state b	elow):	
1.	<b>Seal Test Port Fiberglass Tube:</b> Ø1%-inch, 0.06 with documentation containing dimensional and materials.		rglass material. S	upply con	ponent
2.	<b>Seal Test Port Tubing:</b> Ø1½-inch, 20-gauge (0. A213, Type 304. Supply with documentation contains	030-inch wall thickness); aining dimensional and ma	stainless steel ma aterial compliance	aterial per	ASTM
3.	<b>Vent Port Fiberglass Tube:</b> Ø1%-inch, 0.06-inch documentation containing dimensional and materia		s material. Supply	compone	ent with
4.	4 TV - D - D - TV - D - O - O - O - O - O - D - O - O - O				
5.	<b>Vent Port Cover:</b> Brass material per ASTM B1 containing material compliance.	6, Alloy 360, 1/2 hard te	mper. Supply wi	th docume	entation
6.	<b>6. Vent Port Cover O-ring Seal:</b> Size per Parker AS-568-914 (3-914); 1.047-inch (±0.010-inch) I.D. × Ø0.116-inch ±0.004-inch; butyl rubber material per RR-0405-70, Rainier Rubber Company, or neoprene or ethylene propylene rubber material per ASTM D2000 (70, 80, or 90 Durometer). Supply component with documentation containing dimensional and material compliance.				
Prep Cog	Date of the state	ar W	Sella Ucomo 1	11/23/2 2-7-	Date
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$\times$ Ø0.070-inch ±0.004-ince thylene propylene rubbe	Document No.  ng O-ring Seal: Size per Parker AS-568-014 (2-th; butyl rubber material per RR-0405-70, Rainie r material per ASTM D2000 (70, 80, or 90 Dudimensional and material compliance.	r Rubber Compan	(±0.006-inch) I.D. y, or neoprene or
COMMERCIAL GRADE DEDICAT	TION: (SUMMARIZE CHARACTERISTICS)		
N/A			

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Sys	stem No	PT01	<u> </u>	Document No.	PE-04-0002	Rev. <u>0</u>
Sul	bject <u>Hal</u>	fPACT Packag	ge	QCA No.	15	Rev0
Dra	awing No.	PacTec Draw	ving No. 707-SAR (HalfPAC	T Safety Analysis Rep	ort Drawing)	Rev. <u>6</u>
ITE	M DESCRIP	TION:				
			OCA INTERNAL TEMPERATI	URE CONTROL COMPO	ONENTS	
1.	Ceramic 7	Γape: Sheet 4,	Detail Y, Zone B-7			
2.	Adhesive:	Sheet 4, Deta	il Y, Zone B-7			
3.	Inner The	ermal Shield:	Sheet 4, Detail B, Zone C-4/	5		
4.	Pop Rivet	s: Sheet 1, Fla	ng Note 37, Zone B-4/5/6; Sh	eet 4, Detail B, Zone C	2-4/5	
5.	-		Sheet 4, Detail B, Zone C-4/5			
6.	Lid Angle	: Sheet 4, Deta	ail Y, Zone B-7			
7.	Body Ang	le: Sheet 4, Do	etail Y, Zone A/B-7			
8.		<b>Port Foam or</b> G-G, Zone C/I	Ceramic Plug: Sheet 1, F/N D-4/5	N 4, Zone D-6/7/8; She	et 1, F/N 34, Zone	B/C-4/5/6; Sheet
9.	Vent Port	ŕ	ramic Plug: Sheet 1, F/N 4,	Zone D-6/7/8; Sheet 1	, F/N 34, Zone B/0	C-4/5/6; Sheet 5,
Qu	ALITY CATE	GORY:	☐ Category A		☐ Category	С
Bas	sis:					
red rad	nperature co uce the effe ioactive ma	ntrol component ectiveness of the terial from the	ermal shield, fiberglass insorts, secondary in nature to the closure region thermal despackaging, but only in conjustely affecting public health as	te outer thermal shield. sign and thus the conta unction with failure of	Failure of these comment seals, resu	omponents could lting in a release
Cri	tical Chara	cteristics:	☐ CMTR (chemicals ar	nd physicals)	☐ Other (state be	elow):
1.			wide woven tape; ceramic ce containing dimensional ar			material with a
2.		Thermoseal comp	or RTV silicone adhesive ma oliance.	terial. Supply materia	l with a Certificate	of Conformance
3.						
4.			commercial pop rivets; stain configuration and material co		upply material with	n a Certificate of
5.	5. <b>Fiberglass Insulation:</b> 2-inch thick uncompressed; 0.6-lb/ft <sup>3</sup> uncompressed fiberglass insulation material. Supply material with a Certificate of Conformance containing dimensional, configuration, and material compliance.					
Prep 7 Cog	parer wr Ca mizani Manage	viner er	] .  9.04 Date  1.23.04	Joeld C. Cognizant Engineer  QA Repyesentative	Sellano 1	11/23/04 Date 2-7-04 Date

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# **QUALITY CATEGORY ASSESSMENT**

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- **6. Lid Angle:** 1-inch × 1-inch × 1/8-inch thick; stainless steel material per ASTM A276 or A479, Type 304. Supply material with a Certificate of Conformance containing configuration and material compliance.
- 7. **Body Angle:** 2-inch × 2-inch × 1/4-inch thick; stainless steel material per ASTM A276 or A479, Type 304. Supply material with a Certificate of Conformance containing configuration and material compliance.
- **8. Seal Test Port Foam or Ceramic Plug:** Foam per *Commercial Grade Dedication*, below, or ceramic fiber paper material per Lytherm No. 1535-LK (nominal 1/4-inch thickness), Lydall Technical Papers, Rochester, New Hampshire, or Fiberfrax No. 970K, Unifrax Corporation, Niagara Falls, New York. Supply material with a Certificate of Conformance containing material compliance.
- 9. Vent Port Foam or Ceramic Plug: Foam per Commercial Grade Dedication, below, or ceramic fiber paper material per Lytherm No. 1535-LK (nominal 1/4-inch thickness), Lydall Technical Papers, Rochester, New Hampshire, or Fiberfrax No. 970K, Unifrax Corporation, Niagara Falls, New York. Supply material with a Certificate of Conformance containing material compliance.

COMMERCIAL GRADE DEDICATION: (SUMMARIZE CHARACTERISTICS)

### Physical Characteristics:

See Section 8.1.4.1, *Polyurethane Foam*, of the HalfPACT Safety Analysis Report.

#### Performance Characteristics:

See Section 8.1.4.1, *Polyurethane Foam*, of the HalfPACT Safety Analysis Report.

#### Verification Methods:

See Section 8.1.4.1, Polyurethane Foam, of the HalfPACT Safety Analysis Report.

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System No. PT01	_	Document No	PE-04-0002	Rev. <u>0</u>		
Subject <u>HalfPACT Package</u>	e	QCA No	16	Rev0		
Drawing No. PacTec Draw	ing No. 707-SAR (HalfF	PACT Safety Analysis Repo	ort Drawing)	Rev6		
ITEM DESCRIPTION:						
0	CA EXTERNAL TEMPER	RATURE CONTROL COMPO	NENTS			
OCA Outer Thermal Shield:	: Sheet 4, Detail B, Zone	e B/C-4				
QUALITY CATEGORY:		☐ Category B	☐ Categor	y C		
Basis:						
The OCA outer thermal shield is a temperature control component protecting components within the Z-flange region of the closure interface, and is required to thermally protect containment under normal conditions of transport and hypothetical accident conditions. Failure of the outer thermal shield could result in subsequent failure of the containment seals and release radioactive material from the packaging, directly resulting in a condition adversely affecting public health and safety.						
Critical Characteristics:		s and physicals)	Other (state b	pelow):		
<b>OCA Outer Thermal Shield:</b> Stainless steel material per ASTM A240, Type 304. The thickness for the outer thermal shield is 0.075-inch (14-gauge), with sheet thickness tolerances in accordance with Table A1.2 of ASTM A480-95a or A2.13 of ASTM A480-99b.						
COMMERCIAL GRADE DEDICA	TION: (SUMMARIZE CHA	RACTERISTICS)				
N/A						

Preparer
Date

11.19.04

11.19.04

Date

Cognizant Manager

Date

Joll C. Sellm 11/23/04

Cognizant Engineer

Date

OA Representative

Date

ΕA	.08PT3006-1-0 QUALITY CA	TEGORY ASSESSMEN	NT	Page 2	28 of 46
Sy	stem No. PT01	Document No.	PE-04-0002	Rev.	0
Su	bject <u>HalfPACT Package</u>	QCA No	17	Rev.	0
Dra	awing No. PacTec Drawing No. 707-SAR (I	HalfPACT Safety Analysis Repo	ort Drawing)	Rev.	6
ΙΤΕ	M DESCRIPTION:				
		NSUMABLE VENT COMPONENTS			
1.	<b>Weld Flange:</b> Sheet 2, Detail "HalfPACT P 8, Section L-L, Zone D-7; Sheet 8, Section N		neet 2, View A-A	., Zone C-	2; Sheet
2.	<b>Pipe Plug:</b> Sheet 2, Detail "HalfPACT PAC Section L-L, Zone D-7; Sheet 8, Section N-N		t 2, View A-A, Z	Zone C-2;	Sheet 8,
	OCA FOAN	M FILL PORT COMPONENTS			
1.	<b>Doubler Plate:</b> Sheet 8, Section K-K, Zor FOAM FILL PORT IN OCA LOWER HEAD		Zone D-7; Sheet	8, Sectio	n "TYP
2.	<b>Cover Plate:</b> Sheet 8, Section K-K, Zone D-FILL PORT IN OCA LOWER HEAD", Zone		D-7; Sheet 8, Sec	tion "TYP	FOAM
Qu	JALITY CATEGORY: Category A	☐ Category B	Categor	у С	
Ва	sis:				
eve pol	e OCA fire consumable vent components are usent, and the OCA foam fill port components proyurethane foam. Failure of these components vuce the effectiveness of the packaging, indirectly	vide temporary access to the OC would not release radioactive ma	A foam cavity for terial from the pa	r installatio ckaging bu	on of the at would
Cri	itical Characteristics:   CMTR (chen	nicals and physicals)	Other (state b	pelow):	
		NSUMABLE VENT COMPONENTS			
1.	<b>Weld Flange:</b> 1½-inch NPT weld flange; Conformance containing configuration and m		y component wit	th a Certif	ficate of
2.	<b>Pipe Plug:</b> 1½-inch NPT flush pipe plu Conformance containing configuration and m		component with	a Certif	icate of
	OCA FOAN	M FILL PORT COMPONENTS			
1.	<b>Doubler Plate:</b> 1/4-inch thick plate; stainless stee inch nominal thickness material is 0.240-inch, and A480-95a or A2.17 of ASTM A480-99b. Superhemical and physical properties.	d the maximum thickness is in acc	ordance with Tabl	le A1.17 o	f ASTM
2.	Cover Plate: 1/4-inch thick plate; stainless steel inch nominal thickness material is 0.240-inch, an A480-95a or A2.17 of ASTM A480-99b. Sup chemical and physical properties.	nd the maximum thickness is in account	cordance with Tab	le A1.17 o	f ASTM
	MMERCIAL GRADE DEDICATION: (SUMMARIZE	CHARACTERISTICS)			
N/	A				

Preparer Date

11.19.04

Date

Cognizant Manager

Date

11.19.04

Date

OA Representative

Date

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System No. PT01	Document No. <u>PE-04-0002</u>	2 Rev0			
Subject <u>HalfPACT Package</u>	QCA No18	Rev0			
Drawing No. PacTec Drawin	ng No. 707-SAR (HalfPACT Safety Analysis Report Drawing)	Rev6			
ITEM DESCRIPTION:					
	CERAMIC FIBER PAPER				
Sheet 1, F/N 34, Zone B/C-4/S Section M-M, Zone B-2	5/6; Sheet 4, Detail B, Zone A/B/C/D-4/5; Sheet 4, Detail Z, Z	Zone B-2/3; Sheet 8,			
QUALITY CATEGORY:		gory C			
Basis:					
polyurethane from being consumaterial could cause a failure o	rial is a temperature control component that is required to pured in the hypothetical accident condition fire. Failure of the of the polyurethane foam and result in subsequent failure of the on the packaging, directly resulting in a condition adversely affects	e ceramic fiber paper containment seals and			
Critical Characteristics:	☐ CMTR (chemicals and physicals) ☐ Other (sta	te below):			
Ceramic fiber paper material per Lytherm No. 1535-LK (nominal 1/4 inch thickness), Lydall Technical Papers, Rochester, New Hampshire, or Fiberfrax No. 970K, Unifrax Corporation, Niagara Falls, New York. The material shall be acceptable if continuous direct exposure to a 800 °C (1,475 °F) thermal environment for 30 minutes does not reduce the material's effectiveness as a thermal barrier, i.e., physically intact. If a Quality Level A vendor cannot be qualified, perform commercial grade dedication based on the critical characteristics.					
COMMERCIAL GRADE DEDICAT	ION: (SUMMARIZE CHARACTERISTICS)				
Physical Characteristics:					
See Critical Characteristics, ab	ove.				
Performance Characteristics	:				
See Critical Characteristics, ab	ove.				
Verification Methods:					
See Critical Characteristics, ab	oove.				

Preparer

Date

| Date | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Doctor | Docto

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System No. PT01	_	Document No	PE-04-0002	Rev	0
Subject <u>HalfPACT Package</u>		QCA No.	19	Rev	0
Drawing No. PacTec Draw	ing No. 707-SAR (Half	PACT Safety Analysis Repo	ort Drawing)	Rev	6
ITEM DESCRIPTION:					
	Polyui	RETHANE FOAM			
Sheet 1, F/N 4, Zone D-6/7/8;	Sheet 2, "HalfPACT PA	ACKAGING", Zone B/C/D-	5/6/7		
QUALITY CATEGORY:	□ Category A	☐ Category B	Categor	y C	
Basis:					
The polyurethane foam is re- normal conditions of transport failure of the containment seal adversely affecting public heal	and hypothetical accides and release radioactive	ent conditions. Failure of th	e polyurethane fo	oam could	cause a
Critical Characteristics:	☐ CMTR (chemica	ls and physicals)	Other (state b	elow):	
The rigid polyurethane foam r Section 8.1.4.1, <i>Polyurethane</i> be qualified, perform commerce	Foam, of the HalfPAC	Γ Safety Analysis Report. I	f a Quality Level		
COMMERCIAL GRADE DEDICA	TION: (SUMMARIZE CHA	ARACTERISTICS)			
Physical Characteristics:					
See Section 8.1.4.1, Polyureth	ane Foam, of the HalfP.	ACT Safety Analysis Repor	t.		
Performance Characteristic	s:				
See Section 8.1.4.1, Polyureth	ane Foam, of the HalfP.	ACT Safety Analysis Repor	t.		
Verification Methods:					
See Section 8.1.4.1, Polyureth	ane Foam, of the HalfP.	ACT Safety Analysis Repor	t.		

Preparer Date

| Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date | Date |

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Sy	stem No. PT01	Document No. PE-04-0	0002 Rev. 0
•	bject HalfPACT Package	QCA No. 20	Rev. 0
	awing No. PacTec Drawing No. 707-SAR (Ha	alfPACT Safety Analysis Report Drawin	ng) Rev. 6
ITE	M DESCRIPTION:		
	ICV Lid (	CLOSURE COMPONENTS	
1.	<b>Optional Internal Thread Insert:</b> Sheet 7, Se	ection T-T, Zone D-7	
2.	<b>Lock Bolt Weldment:</b> Sheet 7, Section T-T, A-7	Zone D-7; Sheet 7, Detail "LOCK BO	LT WELDMENT", Zone
3.	<b>Locking Ring Pins:</b> Sheet 7, Detail "ICV AN BA, Zone D-2	D OCV LOCKING RING PIN", Zone	A-5; Sheet 10, View BA-
	OCA LID	CLOSURE COMPONENTS	
1.	Round Bar: Sheet 4, Detail Y, Zone B-7		
2.	Internal Thread Insert: Sheet 4, Detail Y, Zo	one B-7	
3.	<b>Lock Bolt Weldment:</b> Sheet 2, View A-A, Z BOLT WELDMENT", Zone A-7	one B-3; Sheet 4, Detail Y, Zone B-6/7	; Sheet 7, Detail "LOCK
4.	<b>Locking Ring Pins:</b> Sheet 7, Detail "ICV AN BC, Zone B/C-2	D OCV LOCKING RING PIN", Zone	A-5; Sheet 10, View BC-
5.	Pan Head Screws: Sheet 4, Detail AC, Zone G	C-2	
Qυ	JALITY CATEGORY:   Category A	☐ Category B ☐ C	Category C
Ва	sis:		
trai	e ICV and OCV lid closure components are insport and hypothetical accident conditions. F terial from the packaging, directly resulting in a	Failure of the lid closure components	could release radioactive
Cri	itical Characteristics: CMTR (chemi	cals and physicals)	(state below):
	ICV Lid (	CLOSURE COMPONENTS	,
1.	<b>Optional Internal Thread Insert:</b> 1/2-13UN equivalent. Supply components with a Cercertification.	C; Tridair KN813J, Fairchild Fasteners tificate of Conformance containing co	
2.	<b>Lock Bolt Weldment:</b> Socket head cap screw O.D. × 11-gauge (0.120-inch thick), seamless with a Certificate of Conformance containing c	tubing; Type 304 stainless steel mater	
3.	<b>Locking Ring Pins:</b> Stainless steel material with a Certified Material Test Report (CMTR)		
	OCA LID	CLOSURE COMPONENTS	
1.	<b>Round Bar:</b> Stainless steel material per AST Material Test Report (CMTR) containing chem		material with a Certified
2.	Internal Thread Insert: 1/2-13UNC; Tridair	KN813J, Fairchild Fasteners, Torrance,	California, or equivalent.

Supply components with a Certificate of Conformance containing configuration and material certification.

At tolk	11-19-04	Toold C. Sellm	- 11/23/04
Preparer	Date	Cognizant Engineer	Date
mo Cavinia	11.23.04	CR Williams	2-7-04
Cognizant Manager	Date	QA Representative	Date
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-	Lock Bolt Weldment: Socket head cap screw, 1/2-13UNC, 1-inch long; 18-8 stainless steel m inch O.D. × 11-gauge (0.120-inch thick), seamless tubing; Type 304 stainless steel m components with a Certificate of Conformance containing configuration and material certification	aterial, and, 3/4- aterial. Supply
4.	<b>Locking Ring Pins:</b> Stainless steel material per ASTM A564, Type 630, Condition 1150. with a Certified Material Test Report (CMTR) containing chemical and physical properties.	
5.	<b>Pan Head Screws:</b> Pan head screw, 1/4-20UNC or 1/4-28UNF, 3/8-inch long; 18-8 stainles Supply components with a Certificate of Conformance containing configuration certification properties.	

COMMERCIAL GRADE DEDICATION: (SUMMARIZE CHARACTERISTICS)

N/A

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Sy	stem No. PT01	Docu	ıment No.	PE-04-0002	Rev.	0
Su	bject <u>HalfPACT Package</u>		QCA No.	21	Rev.	0
Dra	awing No. <u>PacTec Drawi</u>	ng No. 707-SAR (HalfPACT Safety A	nalysis Rep	ort Drawing)	Rev.	6
	M DESCRIPTION:					
	W BLOOK HOW	ICV VENT PORT COMPON	ENTS			
1.	Vent Port Insert: Sheet 5,	Section V-V, Zone C-7; Sheet 12, Det		NT PORT INSERT	Γ", Zone C	/D-7
2.	Outer Vent Port Plug: PLUG", Zone B/C-4/5	Sheet 5, Section V-V, Zone C-7; S	Sheet 12, D	etail "ICV OUTE	R VENT	PORT
		OCV VENT PORT COMPON	NENTS			
1.	Vent Port Coupling (Inl COUPLING (INBOARD)	<b>board):</b> Sheet 5, Section H-H, Zon ', Zone C/D-2	e C-3; Shee	et 12, Detail "OC"	V VENT	PORT
2.	<b>Vent Port Fitting:</b> Sheet 5 1/2/3	5, Section H-H, Zone C-3; Sheet 11, Do	etail "OCV V	/ENT PORT FITT	ING", Zon	e C/D-
3.	Vent Port Plug: Sheet 5,	Section H-H, Zone C-3; Sheet 11, Det	ail "OCV V	ENT PORT PLUG	", Zone C	/D-7/8
Qι	ALITY CATEGORY:	☐ Category A ☐ Categ	jory B	☐ Category	С	_
Ва	sis:					
anc	I hypothetical accident cond	omponents are required to maintain co litions. Failure of the vent port comp g in a condition adversely affecting pu	onents coul	d release radioactiv		
Cri	tical Characteristics:		als)	Other (state be	elow):	
		ICV VENT PORT COMPON	ENTS			
1.	Vent Port Insert: Stainle	ss steel material per ASTM A479, Typ	pe 304.			
2.	Outer Vent Port Plug: B	rass material per ASTM B16, Alloy 36	60, 1/2 hard	temper.		
		OCV VENT PORT COMPON	NENTS			
1.	Vent Port Coupling (Inbo	oard): Stainless steel material per AS	TM A479, T	Type 304.		
2.	Vent Port Fitting: Stainle	ess steel material per ASTM A479, Ty	pe 304.			
3.	Vent Port Plug: Brass ma	nterial per ASTM B16, Alloy 360, 1/2	hard temper	-		
		ION: (SUMMARIZE CHARACTERISTICS	)			
N/A	1					

Preparer
Date

11.19.04

11.19.04

Date

Cognizant Manager

Date

Date

Date

OA Representative

Date

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Sy	stem No	PT01	_	Document No	PE-04-0002	Rev. <u>0</u>
Su	bject <u>Half</u>	PACT Packag	e	QCA No	22	Rev0
Dra	awing No	PacTec Draw	ving No. 707-SAR (HalfPAC)	Γ Safety Analysis Repo	ort Drawing)	Rev. <u>6</u>
ITE	M DESCRIPT	ION:				
			ICV SEAL TEST PO	ORT COMPONENTS		
1.		<b>Port Insert:</b> S Zone C/D-4/5	heet 5, Section W-W, Zone A	A/B-7; Sheet 11, Detail	"OCV & ICV SI	EAL TEST PORT
2.	Seal Test P Zone A/B-6	_	et 5, Section W-W, Zone A/B-7	; Sheet 11, Detail "OCV	& ICV SEAL TE	ST PORT PLUG",
3.			ring Seal: Sheet 1, G/N 18, LL TEST PORT PLUG", Zono		, G/N 44, Zone A	x-4/5/6; Sheet 11,
			OCV SEAL TEST PO	ORT COMPONENTS		
1.		<b>Port Insert:</b> S Zone C/D-4/5	Sheet 5, Section G-G, Zone C.	/D-5; Sheet 11, Detail	"OCV & ICV SI	EAL TEST PORT
2.	<b>Seal Test I</b> PLUG", Zo		eet 5, Section G-G, Zone C	/D-5; Sheet 11, Detail	"OCV & ICV SI	EAL TEST PORT
3.			ring Seal: Sheet 1, G/N 18, LL TEST PORT PLUG", Zone		, G/N 44, Zone A	A-4/5/6; Sheet 11,
	JALITY CATE	GORY:	☐ Category A	☑ Category B	☐ Categor	уС
con	ntainment se vide a secon	al for normal ndary level of	st port components are utili- conditions of transport and containment protection. Fa g, indirectly resulting in a cond	I hypothetical accider ilure of the seal test	nt conditions. T port components	hese components could reduce the
Cri	tical Charac	cteristics:	☐ CMTR (chemicals an	d physicals)	Other (state b	elow):
			ICV SEAL TEST PO	RT COMPONENTS		
1.			Stainless steel material per ee containing material certifica		304. Supply co	omponents with a
2.			rass material per ASTM B16, ee containing material certifica		temper. Supply c	omponents with a
3.	Seal Test Port Plug O-ring Seal: Size per Parker AS-568-905 (3-905); 0.414-inch (±0.005-inch) I.D. × Ø0.072-inch ±0.003-inch; butyl rubber material per RR-0405-70, Rainier Rubber Company, Seattle, Washington, or neoprene or ethylene propylene rubber material per ASTM D2000 (70, 80, or 90 Durometer). Supply component with a Certificate of Conformance containing dimensional and material compliance.					
1.			OCV SEAL TEST Po Stainless steel material per se containing material certifica	ASTM A479, Type	304. Supply co	omponents with a
2.	Seal Test 1	Port Plug: Bi	rass material per ASTM B16, be containing material certifica	, Alloy 360, 1/2 hard	temper. Supply c	omponents with a
Prep 7 Cog	parer works	viner	11-19-04 Date 11-23-04 Date	Cognizant Engineer  QA Representative	Sella Uleanso 1	11/23/04 Date 2-7-04 Date

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System No	PT01	Document No.	PE-04-0002	Rev.	0
Ø0.072-inch Washington,	$\pm 0.003$ -inch; butyl, or neoprene or ethyler	: Size per Parker AS-568-905 (3-905) rubber material per RR-0405-70, Rane propylene rubber material per ASTM e of Conformance containing dimensional	ninier Rubber C D2000 (70, 80, o	ompany, Se or 90 Durom	eattle,
COMMERCIAL GR	RADE DEDICATION: (SU	MMARIZE CHARACTERISTICS)			
N/A					

EA08I	PT3006-1-0	QUALITY CATE	GORY ASSESSM	ENT	Page 36 of 46
Syste	m No. <u>PT01</u>	_	Document No	PE-04-0002	Rev. <u>0</u>
Subje	ct <u>HalfPACT Packag</u>	e	QCA No	23	Rev0
Drawi	ng No. PacTec Draw	ing No. 707-SAR (Half	PACT Safety Analysis R	eport Drawing)	Rev. <u>6</u>
Ітем С	DESCRIPTION:				
		ICV LID LI	FTING COMPONENTS		
1. Pi	pe: Sheet 8, Section X	-X, Zone D-4/5			
2. PI	ate: Sheet 8, Section X	X-X, Zone D-4/5			
3. R	ound Bar: Sheet 8, Sec	ction AT-AT, Zone B/C	9-6		
4. D	oubler Plate: Sheet 8,	Section X-X, Zone D-4	/5		
QUALI	TY CATEGORY:		☐ Category B	☐ Categor	y C
Basis:	:				
under compo	normal conditions of	transport and hypothet dioactive material fror	rt of the inner vessel, and ical accident conditions. in the packaging, directly	Failure of the IC	CV lid lift pocket
Critica	al Characteristics:		als and physicals)		pelow):
			tainless steel material pe ce containing dimensional		A376, Type 304.
1/-		ess material is 0.240-in	rial per ASTM A240, Ty ich, and the maximum tl 80-99b.		
3. R	ound Bar: Stainless ste	eel material per ASTM	A479, Type 304.		
m	inimum thickness for 3	3/8-inch nominal thickr	s steel material per AST ness material is 0.365-inc or A2.17 of ASTM A480-	ch, and the maximu	
Сомм	ERCIAL GRADE DEDICA	TION: (SUMMARIZE CH	ARACTERISTICS)		

N/A

Preparer

Date

Date

Cognizant Manager

Date

11.19.04

11.19.04

Date

Cognizant Engineer

Date

OA Representative

Date

EΑ	08PT3006-1-0	QUALITY CATEG	ORY ASSESSMEN	IT	Page 37	7 of 46
Sy	stem No. PT01		Document No	PE-04-0002	Rev	0
Su	bject <u>HalfPACT Package</u>		QCA No	24	Rev.	0
Dra	awing No. PacTec Drawin	ng No. 707-SAR (HalfP	ACT Safety Analysis Repo	ort Drawing)	Rev	6
ITE	M DESCRIPTION:					
		OCA LID LIFT	TING COMPONENTS			
1.	Lifting Straps: Sheet 8, S	ection M-M, Zone B-2				
2.	<b>Doubler Plate:</b> Sheet 8, S	ection AX-AX, Zone B/0	C-7/8			
3.	Round Bar: Sheet 8, View	w AV-AV, Zone A/B-7/8	}			
		PACKAGING LII	FTING COMPONENTS			
1.	Fork Lift Pocket: Sheet 4	l, Detail Z, Zone B-2/3				
_						
	ALITY CATEGORY:	☐ Category A		Category	<i>i</i> C	
	sis:					
OC	e packaging and OCA lid li A lid lifting components c ersely affecting public healt	ould reduce the effective				
Cri	tical Characteristics:		and physicals)	Other (state b	elow):	
		OCA LID LIFT	TING COMPONENTS			
1.	<b>Lifting Straps:</b> 1/4-inch to Type 304. The minimum maximum thickness is in action of the strategies.	thickness for 1/4-inch n	ominal thickness, ASTM	A240 material i	s 0.240-in	
2.	<b>Doubler Plate:</b> 1/4-inch thick; stainless steel material per ASTM A240, Type 304. The minimum thickness for 1/4-inch nominal thickness material is 0.240-inch; the maximum thickness is in accordance with Table A1.17 of ASTM A480-95a or A2.17 of ASTM A480-99b.					
3.	Round Bar: Stainless stee	el material per ASTM A4	79, Type 304.			
		PACKAGING LII	FTING COMPONENTS			
1.	<b>Fork Lift Pocket:</b> 3/16-thickness for 3/16-inch nor Table A1.17 of ASTM A480	minal thickness material	is 0.178-inch; the maxim			
Cc	MMERCIAL GRADE DEDICAT	ION: (SUMMARIZE CHAR	ACTERISTICS)			
N/2		(Sommanie Strike				
- 1/ 1	-					

Preparer

Date

11.19.04

Date

Cognizant Manager

Date

EΑ	08PT3006-1-0	QUALITY CATEGORY ASSESSME	NT	Page 3	8 of 46
Sys	stem No. PT01	_ Document No.	PE-04-0002	Rev	0
Sul	bject <u>HalfPACT Packag</u> e	QCA No.	25	Rev	0
Dra	awing No. PacTec Draw	ing No. 707-SAR (HalfPACT Safety Analysis Rep	ort Drawing)	Rev	6
İTE	M DESCRIPTION:				
		TIE-DOWN COMPONENTS			
1.	<b>Tie-down Lug:</b> Sheet 2 DOWN LUG", Zone B-1/	, View A-A, Zone B/C-2; Sheet 9, View J-J, Zo	one A/B-4/5; Shee	t 9, Detai	l "TIE
2.	Side Doubler Plate: She	et 9, View J-J, Zone A/B-4/5			
3.	Gusset: Sheet 9, Section	D-D, Options 1 & 2, Zone C/D-4/5/6/7; Sheet 9, V	iew J-J, Zone A/B	-4/5	
4.	<b>Bottom Doubler Plate: S</b>	Sheet 9, Section D-D, Options 1 & 2, Zone C/D-4/5	5/6/7		
5.	<b>Bottom Tripler Plate:</b> S	heet 9, Section BD-BD, Zone A-7/8; Sheet 9, Secti	ion BE-BE, Zone A	<b>A-</b> 6	
Qu.	ALITY CATEGORY:	☐ Category A ☐ Category B	☐ Category	/ C	
	ALITY CATEGORY:	☐ Category A ☐ Category B	☐ Category	/ C	
Bas The con pac	sis:  e packaging tie-down cor nponents could reduce the kaging, but only in conjur	Category A	vehicle. Failure elease radioactive	of the ti	om the
Bas The con pac pac resu	sis:  e packaging tie-down cor nponents could reduce the kaging, but only in conjur	mponents secure the package to the transport of effectiveness of the packaging and resulting in a reaction with failure of other packaging structural arely affecting public health and safety.	vehicle. Failure elease radioactive	of the ti material fi onents, in	om the
Bas The con pac resu	sis:  e packaging tie-down cornponents could reduce the kaging, but only in conjurulting in a condition adverstical Characteristics:	mponents secure the package to the transport of effectiveness of the packaging and resulting in a reaction with failure of other packaging structural arely affecting public health and safety.	vehicle. Failure elease radioactive and thermal composition.  Other (state b	of the ti material fi onents, in	om the
Bas The con pac resu Crit	e packaging tie-down cornponents could reduce the chaging, but only in conjunulting in a condition adversuitical Characteristics:  Tie-down Lug: Stainless Side Doubler Plate: 3/8 minimum thickness for 3	mponents secure the package to the transport reffectiveness of the packaging and resulting in a reaction with failure of other packaging structural and affecting public health and safety.   CMTR (chemicals and physicals)	vehicle. Failure elease radioactive and thermal composition.  Other (state but 1.)  MA240 or A479, and the maximum	of the ti material fi onents, in- elow):	om the directly
Bas The con pac resu	e packaging tie-down cornponents could reduce the chaging, but only in conjunulting in a condition adversuitical Characteristics:  Tie-down Lug: Stainless Side Doubler Plate: 3/8 minimum thickness for 3 accordance with Table A1  Gusset: 1/4-inch thick plate in thick plate in the common in thickness for 1/4-inch nominal thickness for 1/4-in	mponents secure the package to the transport reffectiveness of the packaging and resulting in a reaction with failure of other packaging structural and affecting public health and safety.  CMTR (chemicals and physicals)  steel material per ASTM A240 or A479, Type 304  steel material per ASTM A240 or A479, Type 304  steel material per ASTM A240 or A479, Type 304  steel material per ASTM A240 or A479, Type 304  steel material per ASTM A240 or A479, Type 304  steel material per ASTM A240 or A479, Type 304  steel material per ASTM A240 or A479, Type 304  steel material per ASTM A240 or A479, Type 304	vehicle. Failure elease radioactive and thermal composition.  Other (state but 4.)  TM A240 or A479, and the maximum ob.  see 304. The minim	of the ti material fi onents, in- elow): , Type 30 m thickne	from the directly 4. The ss is in the ss for the state of
The con pactress. Crit. 2.	e packaging tie-down cornponents could reduce the chaging, but only in conjunulting in a condition adversuitical Characteristics:  Tie-down Lug: Stainless Side Doubler Plate: 3/8 minimum thickness for 3 accordance with Table A1  Gusset: 1/4-inch thick plate: 1/4-inch nominal thicknes A1.17 of ASTM A480-95a  Bottom Doubler Plate: minimum thickness for 1	mponents secure the package to the transport of effectiveness of the packaging and resulting in a reaction with failure of other packaging structural and affecting public health and safety.  CMTR (chemicals and physicals)  Settle material per ASTM A240 or A479, Type 304  Settle inch thick plate; stainless steel material per ASTM A240, Type 304  Mate; stainless steel material per ASTM A480-99  Mate; stainless steel material per ASTM A240, Type 304  Mate; stainless steel material per ASTM A240, Type 305  Mate; stainless steel material per ASTM A240, Type 305  Mate; stainless steel material per ASTM A240, Type 306  Mate; stainless steel material per ASTM A240, Type 306  Mate; stainless steel material per ASTM A240, Type 306  Mate; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Mater; stainless steel material per ASTM A240, Type 306  Material Park Park Park Park Park Park Park Park	vehicle. Failure elease radioactive and thermal composition.  Other (state but 4.)  TM A240 or A479, and the maximum ob.  The 304. The minimum okness is in accordance and the maximum of the maximum of the state of	of the timaterial froments, incelow):  Type 30 m thickness that the dance with the same that the sam	4. The ss is in the table. The

N/A

Joeld C. Sellm 11/23/04
Cognizant Engineer Date

Date

QA Representative Date 11.23.04 Cognizant Manager

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System No. PT01	_	Document No	o. PE-04-0002	Rev0	
Subject <u>HalfPACT Package</u>	e	QCA No	). 26	Rev. <u>0</u>	
Drawing No. PacTec Draw	ing No. 707-SAR (HalfI	PACT Safety Analysis R	eport Drawing)	Rev. <u>6</u>	
ITEM DESCRIPTION:					
	WELD FI	LLER MATERIAL			
Various locations throughout i	most drawing sheets				
QUALITY CATEGORY:		☐ Category B	☐ Categor	y C	
Basis:					
Weld filler material comprises portions of the containment structures, and is required to maintain containment under normal conditions of transport and hypothetical accident conditions. Failure of weld filler material could release radioactive material from the packaging. Since control of weld filler material between containment vessel and non-containment vessel components is difficult to implement at best, all weld filler material is Category A.					
Critical Characteristics:		s and physicals)	○ Other (state b)	elow):	
Compatible material with Typ	e 304 stainless steel.				
COMMERCIAL GRADE DEDICA	TION: (SUMMARIZE CHA	RACTERISTICS)			
N/A					

Preparer
Date

11.19.04

11.19.04

Date

Cognizant Manager

Date

11.23.04

Date

Date

Ognizant Manager

Date

Ognizant Manager

Date

EA08PT3006-1-0 QUALITY CA	TEGORY ASSESSMEI	NT	Page 4	10 of 46
System No. PT01	Document No.	PE-04-0002	Rev.	0
Subject HalfPACT Package	QCA No.	27	Rev.	0
Drawing No. PacTec Drawing No. 707-SAR (H.	alfPACT Safety Analysis Rep	ort Drawing)	Rev.	6
ITEM DESCRIPTION:				
ICV MISCE	LLANEOUS COMPONENTS			
1. Pan/Round Head Screw: Sheet 3, Detail P, Z	Zone B/C-4/5; Sheet 3, Detail S	S, Zone B-2		
2. Flat Washer: Sheet 3, Detail P, Zone B/C-4/5	s; Sheet 3, Detail S, Zone B-2			
3. U-Type Fastener: Sheet 3, Detail P, Zone B/G	C-4/5; Sheet 3, Detail S, Zone	B-2		
4. Locking Ring Stop Plate: Sheet 10, Section A	AZ-AZ, Zone A-6			
QUALITY CATEGORY: Category A  Basis:  The ICV miscellaneous components are used for rotation of the ICV locking ring. Furthermore, th Failure of these components would not release rad adversely affecting public health and safety.	ese components are optional	and have no sign	ICV and ificance to	safety.
	cals and physicals)	☑ Other (state I	pelow):	
Pan/Round Head Screw: Pan or round head documentation containing configuration compliants.	ad screw, 1/4-20UNC, 3/4-ind	•	,	nts with
<b>2. Flat Washer:</b> Flat washer, 5/16-inch nomiconfiguration compliance.	inal size. Supply componen	ts with documen	ntation co	ntaining
<b>3. U-Type Fastener:</b> U-type fastener for 1/4-20 components with documentation containing co		al gap, and 7/8-in	ch throat.	Supply
4. Locking Ring Stop Plate: Stainless steel mate stop plate is 12-gauge (0.105-inch thick), with s A480-95a or A2.13 of ASTM A480-99b. Smaterial compliance.	heet thickness tolerances in acc	ordance with Tab	ole A1.2 o	f ASTM
COMMERCIAL GRADE DEDICATION: (SUMMARIZE C	CHARACTERISTICS)			

N/A

Preparer

Date

Toll C. Sellm 11/23/04

Cognizant Engineer

Date

Cognizant Manager

Date

OA Representative

Date

EA	08PT3006-1-0 QUALITY CATE	GORY ASSESSME	NT	Page 4	1 of 46
Sys	stem No. PT01	Document No.	PE-04-0002	Rev	0
Sub	oject <u>HalfPACT Package</u>	QCA No.	28	Rev.	0
Dra	awing No. PacTec Drawing No. 707-SAR (Half	fPACT Safety Analysis Rep	ort Drawing)	Rev	6
ITE	M DESCRIPTION:				
	OCA MISCELI	LANEOUS COMPONENTS			
1.	Silicone Wear Pad: Sheet 1, F/N 41, Zone B-3/	4/5; Sheet 2, "HalfPACT PA	ACKAGING", Zo	ne B/C-6	
2.	Nameplates: Sheet 1, F/N 3, Zone D-6/7/8; She	et 2, "HalfPACT PACKAG	ING", Zone D-2		
3.	<b>Label:</b> Sheet 1, F/N 46, Zone A-4/5/6; Sheet 2,	"HalfPACT PACKAGING"	, Zone C-7/8		
4.	<b>Optional Shipping Label Holder:</b> Sheet 1, F/N : 7/8	55, Zone C-2/3/4; Sheet 2, "I	HalfPACT PACK	AGING", Z	Zone C-
5.	Optional Annulus Foam Ring: Sheet 4, Detail	B, Zone C-5			
6.	Optional Guide Plate: Sheet 4, Detail AC, Zon	e C-2			
7.	Optional Pan/Round Head Screw: Sheet 4, De	etail AC, Zone C-2			
8.	Optional Locking Ring Stop Plate: Sheet 10, S	Section BB-BB, Zone A-5			
9.	<b>Optional Paint:</b> Sheet 1, F/N 25, Zone D-4/5/6				
Qu	ALITY CATEGORY:   Category A	☐ Category B		y C	
Bas	<u> </u>	_ ,			
pacl and plat	e OCA miscellaneous components are used for rakaging, preventing debris from entering the annulus limiting rotation of the OCV locking ring. Furthese are optional and have no significance to safet verial from the packaging, resulting in no condition and the condition of the occupance occupance of the occupanc	s between the ICV and OCV ermore, the guide plate, pan y. Failure of these compo-	, guiding the OCA head screws, and nents would not r	lid onto the locking ri	ne body, ing stop
Crit	tical Characteristics:	als and physicals)	Other (state b	elow):	
1.	<b>Silicone Wear Pad:</b> 1/8-inch thick with option rubber material. Supply material with documentation	•	_		silicone
2.	<b>Nameplates:</b> 1/2-inch high characters, minimum containing configuration and material compliance		Supply material wi	th docume	entation
3.	<b>Labels:</b> Any commercially available labels. S compliance.	supply material with docur	mentation contain	ing config	uration
4.	<b>Optional Shipping Label Holder:</b> Stainless st material compliance.	eel material. Supply mater	rial with documer	ntation cor	ıtaining
5.	<b>Optional Annulus Foam Ring:</b> Esterfoam ru documentation containing material compliance.	bber material per MIL-P-2	6514-C200. Sup	ply materi	al with
	11.19.00	4 Joeld C.	Sell	11/23/0	4
Prep	0-1	Date Cognizant Engineer	01		Date
Cogi	nizant Manager	Oate QA Repyesentative	elleanes 1	2-7-	04 Date
		,			

EA08PT3006-1-0 QUALITY CATEGORY ASSESSMENT	
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- **6. Optional Guide Plate:** 7-gauge (3/16-inch thick); stainless steel material per ASTM A240, Type 304. The minimum thickness for 3/16-inch nominal thickness material is 0.178-inch; the maximum thickness is in accordance with Table A1.2 of ASTM A480-95a or A2.13 of ASTM A480-99b for sheet material, or Table A1.17 of ASTM A480-95a or A2.17 of ASTM A480-99b for plate material.
- 7. **Optional Pan Head Screw:** Pan head screw, 10-24UNC or 10-32UNF, 1/2-inch long; stainless steel material. Supply material with documentation containing configuration and material compliance.
- **8. Optional Locking Ring Stop Plate:** Stainless steel material per ASTM A240, Type 304. The thickness of the locking ring stop plate is 12-gauge (0.105-inch thick), with sheet thickness tolerances in accordance with Table A2.13 of ASTM A480. Supply material with documentation containing dimensional and material compliance.
- **9. Optional Paint:** Any commercially available, low halogen paint. Supply material with documentation containing material compliance.

COMMERCIAL GRADE DEDICATION: (SUMMARIZE CHARACTERISTICS)

N/A

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Sys	stem No	PT01	_	Document No	PE-04-0002	Rev.	0
Sul	oject <u>Half</u>	PACT Package		QCA No.	29	Rev.	0
Dra	awing No	PacTec Drawi	ng No. 707-SAR (HalfPACT	Safety Analysis Repo	ort Drawing)	Rev.	6
İTEI	M DESCRIPT	ION:					
			MISCELLANEOUS EXTE	ERNAL COMPONENTS			
1.	-	_	: Sheet 1, F/N 20, Zone A-ew AH-AH, Zone B-4	6/7/8; Sheet 2, View A	A-A, Zone D-3; Sl	heet 4, De	tail Y,
2.			Vires: Sheet 1, F/N 20, Zon View AH-AH, Zone B-4	e A-6/7/8; Sheet 2, Vid	ew A-A, Zone D-3	s; Sheet 4,	Detail
3.	Hex Head	Cap Screw: Sl	heet 5, Section H-H, Zone C	-2			
4.	Round Tu	bing: Sheet 8,	Section M-M, Zone B/C-2				
5.	Hex Head	Cap Screws an	nd Lock Washers: Sheet 8,	View AV-AV, Zone A	A-7/8		
6.	Covers, La	inyards, and S	pring Clips: Sheet 8, Section	on M-M, Zone B/C-2			
7.	Cover Plat	tes: Sheet 2, De	etail E, Zone A/B-7/8				
8.	Round Ba	rs: Sheet 4, Sec	ction AA-AA, Zone D-7				
9.	Optional I	nternal Threac	l Inserts: Sheet 4, Section A	AA-AA, Zone D-7			
10.	Pan Head	Screws and Fla	at Washers: Sheet 4, Section	n AA-AA, Zone D-7			
Qu	ALITY CATE	GORY:	☐ Category A ☐	Category B		С	
Bas	sis:						
tran	ısport. Failı	are of these cor	components are each associated associated and safety.				
Crit	tical Charac	cteristics:	CMTR (chemicals and	d physicals)	Other (state be	elow):	
1.			: Use any commercially ava pply component with docum				patible
2.			Vires: Use any commercially pply component with docum				patible
3.			Hex head cap screw, 1/2-1 ation containing configuration			naterial.	Supply
4.			O.D. × 4-inch I.D.; fibed dimensional and material conditions		quivalent. Suppl	y materia	1 with
5.							
6.	<b>6.</b> Covers, Lanyards, and Spring Clips: Supply components with documentation containing dimensional (if appropriate) and material compliance.						
	a. Cover	s: 5-inch I.D.;	plastic, aluminum, or stainles	ss steel material.			
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Prep	oarer WF Ca	rinin	Date 11 • 23 • 0 4	Cognizant Engineer	01.00	2-7	Date
Cogi	nizant Manager	•	Date	QA Representative	CLUMB 1	-/-	Date

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<b>b.</b> Lanvards: Use any co	ommercially available material.					

7. Cover Plates: 14-gauge (0.075-inch thick) or 16-gauge (0.060-inch thick); 300 series stainless steel material. Supply component with documentation containing dimensional and material compliance.

c. Spring Clips: Configured to fit onto a Ø7/8-inch bar; use any commercially available material.

- **8. Round Bars:** Stainless steel material per ASTM A276 or A479, Type 304. Supply material with documentation containing material compliance.
- **9. Optional Internal Thread Inserts:** 1/4-20UNC; Tridair KN420J, Fairchild Fasteners, Torrance, California, or equivalent. Supply components with documentation containing configuration and material compliance.
- **10. Pan Head Screws and Flat Washers:** Pan head screw, 1/4-20UNC, 1/2-inch long; 1/4-inch flat washer; 18-8 stainless steel material. Supply components with documentation containing configuration and material compliance.

COMMERCIAL GRADE DEDICATION: (SUMMARIZE CHARACTERISTICS)

N/A

ΕA	.08PT3006-	1-0	QUALITY CATE	GORY ASSESSME	NT	Page 45 c	of 46
Sy	stem No	PT01	_	Document No.	PE-04-0002	Rev(	0
Su	bject <u>Half</u>	PACT Packag	e	QCA No.	30	Rev(	00
Dra	awing No	PacTec Draw	ving No. 707-SAR (HalfP	ACT Safety Analysis Re	port Drawing)	Rev	6
ITE	м Descript	ION:					
			MISCELLANEOUS P	ACKAGING COMPONENT	CS .		
1.	Vacuum G	Grease: Sheet	1, F/N 15, Zone B-6/7/8;	Sheet 1, F/N 38, Zone B-	-4/5/6		
2.	Optional S	Stainless Steel	Compatible Lubricant:	Sheet 3, Detail P, Zone	B-4/5; Sheet 4, De	etail AC, Zone	C-2
3.	Nickel Bea	ring Lubrica	<b>nt:</b> Sheet 1, F/N 16, Zone	e B-6/7/8			
4.	Thread Lo	cking Compo	ound: Sheet 1, F/N 17, Zo	one B-6/7/8			
5.	Epoxy Adl	hesive: Sheet	1, F/N 32, Zone C-4/5/6				
6.	RTV Silico	one Adhesive:	Sheet 1, F/N 33, Zone C	2-4/5/6; Sheet 1, F/N 34, 2	Zone C-4/5/6		
7.	Furane Ad	Ihesive: Sheet	t 3, "ALUMINUM HONI	EYCOMB SPACER DET	TAIL", Zone D-3/4	1/5	
8.	Optional N	Nickel Plating	: Sheet 1, F/N 53, Zone (	C-2/3/4			
9.	Labeling:	Sheet 1, F/N 2	9, Zone C-3/4/5; Sheet 1, 1	F/N 30, Zone C-3/4/5; Sh	eet 1, F/N 40, Zono	e B-3/4/5	
Qu	IALITY CATE	GORY:	Category A	Category B	⊠ Catego	v C	
	sis:		_ ,	_ ,	_ 0	,	
mai	rking. Failu	are of these cosely affecting p	components are used for imponents would not relevable health and safety.	ease radioactive material	from the packagin	ng, resulting i	
CII	licai Criara	ciensucs.	CMTR (chemicals		_ `	below).	
1	Vacuum C	luooson Amyros		ACKAGING COMPONENT		untation contai	
1.	material co		ommercially available vac	cuum grease. Supply ma	teriai with docume	entation contai	ınıng
2.			el Compatible Lubrican al with documentation cor			s steel compa	tible
3.			ant: Any commercially material compliance.	available nickel bearin	g lubricant. Sup	pply material	with
4.			ound: Any commercially material compliance.	y available thread-locking	g compound. Su	pply material	with
5.	Epoxy Adl material con		commercially available epo	oxy adhesive. Supply ma	aterial with docum	entation conta	ining
6.		one Adhesive: material compli	Any commercially avail iance.	able silicone adhesive.	Supply material v	vith document	ation
7.	Aerospace	Products, Forn	esive per Furane Epocas nulated Systems Group, I material compliance.				
	Ste	R	11-19-04	Jodd C.	Sell	11/23/04	/
Prep	paret WT Can	vinin	Dat 11 • 23 • 0 4	e Cognizant Engineer	elleans.	Q-7_1	Date <b>4</b>
Cog	nizant Manager	,	Dat	e QA Representative		, _ , _ ,	Date

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System No. PT01	Document NoPE-04-000	<u>12</u> Rev. <u>0</u>
8. Optional Nickel Plating documentation containing	g: Any commercially available electroless nickel plating. material compliance.	Supply material with
<b>9. Labeling:</b> Any commerc compliance.	ially available labeling process. Supply material with documentati	ion containing material
COMMERCIAL GRADE DEDICA	ATION: (SUMMARIZE CHARACTERISTICS)	
N/A		